COAL AGE

The Only National Paper Devoted to Coal Mining and Coal Marketing

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An Inevitable Decision

BETWEEN the decision of the Supreme Court that throws out of court prosecutions for profiteering in coal instigated under the Lever Act and the indictments at Indianapolis under the Sherman Law of 226 coal operators and coal miners there is a fundamental difference. From the first the provisions of the law under which it was being attempted to stop sales at high prices seemed of doubtful efficacy because of lack of definition of what constitutes profiteering. The fundamental difference between charging a high price on the open market and conspiring to bring about conditions under which high prices could be charged is the difference between the profiteering clauses of the Lever Act and the basic principle of the Sherman Law.

There never has been on the part of the coal trade an attempt to deny, much less condone, the high prices charged and paid for coal last year. It has been held that these prices were possible under the condition of supply and demand that obtained, and were legally, if not morally, warranted. As to this legality the recent decision of the Supreme Court has finally passed. The New York *Evening Post*, in commenting editorially on the decision, says in part: "It is unfortunate such a decision had to be made. It is safe to say that the unconstitutional section was seldom or never an instrument of oppression. It is clear that it has been of great value in intimidating many would-be profiteers and speculators. But the Supreme Court's decision is unanimous, it coincides with the opinion of various lower courts, and the reasons for holding that the section failed to fix an ascertainable standard of guilt are clear and forcible. The decision is a lesson to Congress upon the way not to draft a law."

The inference to be drawn from this statement is that such high prices as the government sought to characterize as unreasonable were, from the public's standpoint, morally wrong and that the law should have been so framed as to prevent their possibility.

However great the resentment of the consumer at high prices, at being so obviously "gouged," we believe the sober judgment of the public will in the end oppose governmental fixation of commodity prices while upholding the laws that prevent combination within the industry that would seek to effect the same purpose. There is, however, in the decision of the Supreme Court no indulgence for profiteers and no indication that they cannot be touched by law, only that the specific law—the Lever Act—was not definite in this regard.

At Indianapolis a Grand Jury has indicted for trial 226 coal producers and miners for alleged combination in restraint of trade and commerce in coal. These indictments were returned not because of prices charged but because of conduct which may have influenced the price of coal. On this charge the coal industry is on much surer ground. The Sherman Law is as sufficiently definite, because of the interpretive decisions of the highest courts throughout the past fifteen years, as the Lever Act was vague. The coal industry, as an industry, has obeyed that law, has leaned backward in following its mandates, though at times objecting to its limitation. These last indictments before Judge Anderson are not on a level with those of 175 men and companies a year ago under the Lever Act, for the government did not really press them for trial at that time, possibly anticipating the now accomplished fact of the annulment of the Lever Act, under which they were drawn.

How seriously the government entertains the belief that collective wage bargaining and the "check off" are crimes and that adding increased wage cost to the price of a product is reprehensible remains to be shown. We suspect the whole proceeding is more of a backwash of the political expedients used to end the bituminous coal strike in 1919 than a serious effort to correct alleged abuses in the coal trade.

Keeping Up Anthracite Production

GENERAL "summer discounts" in the mine price of domestic anthracite are not to be this year. A few companies may grant them, but it appears the majority will not. Thus is a time-honored custom, one to which is given credit for a large measure of stabilization of the hard-coal industry, once more discarded. In the judgment of the companies, the summer discounts either are not necessary this year or cannot be afforded.

A discount of 50c. a ton in the mine price in April, progressively decreased by 10c. each month until September, was adopted as a policy in the anthracite industry in the early nineties, and with but few exceptions has been announced each spring. In the first place, we may pause to consider the interest a discount of fifty cents a ton in April, 1921, would arouse in a householder who is now paying from $15 to $18 for his coal. His reasoning probably would be along this line: "Everything is going down in price, the average decline in wholesale prices of all commodities is around 5 per cent per month. Coal is the only important commodity that is staying up. It will take a tumble before next winter. A saving of fifty cents a ton now on $18 coal does not interest me because I can get it at something nearer pre-war price before I need it next winter."

But if 50c. a ton will not interest the consumer, what will? A dollar perhaps; maybe $2 is nearer the figure. But who is to absorb the discount, if such or any discount is necessary this year to move hard coal in the summer? With the price of steam sizes down and with sales infrequent, with culm washeries—the most profitable part of the anthracite business when business is good—all closed down, and no decrease of cost

of production in sight, many producers doubtless feel that they cannot afford to grant even a discount of 50c., much less one large enough to tempt the householders to early investment in coal. Seasonal freight rates, which might help toward such an end, are only a scheme so far. No one is left to consider but the retail dealer.

The retail coal merchant handling anthracite has certainly played safe on his margins this season. In the first place, buying at the mine and paying freight on the basis of a ton of 2,240 lb. and distributing in tons of 2,000 lb., he has an initial margin of 12 per cent. Nearly every retail dealer handles some "independent" coal, and obviously with coal from this source averaging perhaps $2.25 per gross ton above company circular, and consequently at least $1.50 above what is generally considered a fair price for other than company output, the retail merchant was obliged to raise his selling price to cover this increased cost to him. Now, a retail merchant is a retail merchant, whether of coal, sugar or haberdashery, and the retail trade is generally charged today with being the laggard in meeting new conditions arising out of the business depression. A large number of, if not all, retail coal merchants handling hard coal added all the traffic would bear when it was necessary to add anything to cover rising mine prices on independent coal. To scan the delivered prices of some, one would conclude that all anthracite is even today of that formerly high-priced brand. Margins, aside from the 12 per cent afforded by change in size of tons, have ranged from $3 to $5 and $6 per ton. The retailer can therefore this year take over in large part the summer discount. He has already done so in some communities—at Philadelphia, for instance, where $1 a ton is the inducement offered for early buying.

Over against consideration of who can or cannot afford to make a discount for early buying is the question of whether it is necessary—that is, whether the householder will not order his coal early irrespective of price present or prospective. The answer probably is that a sufficient tonnage will be put in cellars before September, which with company and local storage will enable the anthracite mines to maintain full-time operation. Full operation is needed lest we have repeated next fall from no-market losses the shortage faced last fall because of strike losses. Maximum output of domestic anthracite in the coal year 1921-22 is anticipated as a requirement of the market. No effort by producer or retailer should be spared to keep it moving steadily throughout this year.

The Waste of Too Many Mines

DEPRESSION, low prices and no sales have produced a condition not without some blessings. Those who were in the coal business before the war and who intend to be in it hereafter are inclined to be philosophical about these dull times and to remark that at least the present market will close out a horde of quick-growth coal operators and jobbers who came in with high prices and are going out with low prices.

It is not always easy to convey an idea of the "water" that is to be squeezed out in a time like this. With requirements for 500,000,000 or more tons of bituminous coal in 1921 we have mines equipped to produce in excess of 750,000,000 if not of 850,000,000 tons. Some idea of how this capacity has increased may be gathered from the weekly reports of production. In the week of Feb. 8, 1919, bituminous production was 7,947,000 tons, with mines operating 52.5 per cent of full time and losing 41.3 per cent because of no market. The indicated full-time capacity, neglecting the portion of the total not shipped as coal, was therefore 15,000,000 tons. In the corresponding week of 1921 production was 8,132,000 tons, operations were at 45.4 per cent of full-time, no market losses were 46.9 per cent. The indicated full-time capacity was nearly 18,000,000 tons. Thus in two years under almost identical conditions of market and labor and car supply—in each instance after a period of great pressure for output—we find an increase in mine capacity of nearly 3,000,000 net tons per week, or 18 per cent, but with no increase in national requirements.

This increase in capacity, which was obtained by gains in the number of mines rather than by increasing the size of already existing plants, was a concomitant of boom prices. Such an increase took place at the time we entered the war. On Jan. 1, 1916, there were 3,646 bituminous coal mines listed by the railroads with a rating of 43,524 cars per day. By Jan. 1, 1917—that is at the beginning of the boom—the number of mines had increased to 4,916 and the total rating to 55,158 cars per day. From the early days of 1917 until prices were fixed by the government in August, things were booming in coal and the record at the opening of 1918 shows 6,157 mines, a gain in 12 months of 1,241 mines or 25 per cent. The aggregate daily rating of these mines was 59,968 cars, a gain of less than 9 per cent. As for total capacity as represented by car rating, this represents the peak, for on Jan. 1, 1919, at the beginning of the dull period that followed the armistice, the total rating dropped to 45,180 cars per day, but the number of mines had increased in the year from 6,157 to 7,079.

By the first of January, 1920, the number of mines, as reported by the railroads, had increased to 7,543 with a total rating of 55,555 cars per day. One can only speculate as to what was the number of mines on Jan. 1, 1921, but it seems fair to assume that it must have exceeded 8,000, an increase in five years of more than 100 per cent.

The very rapid increase in the number of mines to be served by the railroads as compared both with the capacity of these mines and with the requirements of the country for coal shows only too clearly one of the greatest causes of waste in the bituminous coal industry. Every time there is a boom in coal prices more people get into the coal business, more mines are opened, the potential capacity of the industry is expanded, and the available transportation is necessarily distributed over a greater number of producing units. Whereas, to produce 579,000,000 tons of coal in 1918, the railroads were called upon to distribute cars among something more than 6,000 individual mines, in 1920 to produce 556,000,000 tons the railroads with essentially the same amount of cars and locomotives were called upon to serve more than 7,500 coal mines. One result is that with an equal or greater rate of production in any given period of car shortage in 1920, transportation disability —that is, car shortage—figured in terms of percentage, was greater than under corresponding conditions in 1918, because calculated on a larger base. The same is true of loss of working time today because of no market expressed as a percentage of full-time operation. The available orders for coal today are distributed over an inflated capacity, which has the obvious effect of increasing competition.

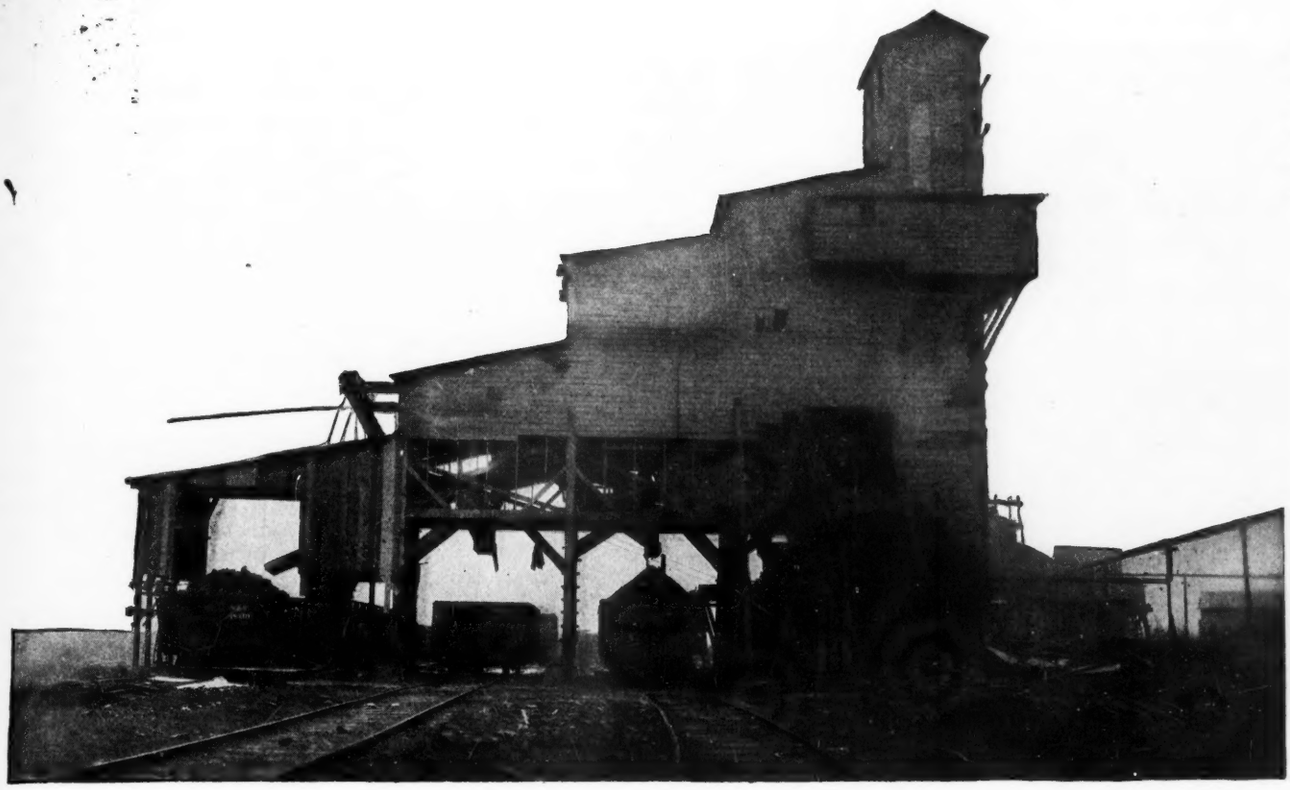

FIG. 1. GENERAL VIEW OF THE RED ROCK TIPPLE FROM LOADED TRACKS

Operating Conditions Encountered in Iowa

Iowa Is a State of Small Coal Operations—Irregularities in the Deposit, Heavy Grades and a Friable Roof Are the Chief Causes of This Condition—Coal Largely Consumed Within the State

BY DONALD J. BAKER
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LITTLE has been written as to the coal mines of Iowa, though within the boundaries of the state many mines are operating. Few of them, however, have a capacity exceeding 2,000 tons a day. This limitation arises partly from the fact that the operators of Iowa have to contend with unusually difficult natural conditions.

State departmental records show that the life of the average coal-mining operation in Iowa rarely exceeds ten years. In these days of speed, when thousands of tons are handled each day through a single shaft opening, immense acreages are quite usually purchased for the purpose of assuring to the mines a length of life that will warrant the investment of large amounts of capital in buildings and equipment. This is not the plan, however, in Iowa.

Many and varied reasons exist why Iowa mines are short-lived. In the first place, the coal beds are irregular in thickness and slope. The beds roll and pitch to such a degree that the average haulageways in the mines resemble in plan and profile a roller-coaster speedway. Furthermore, the beds are neither continuous nor contiguous. The coal lies in small disconnected basins. When one of these has been worked out —that is, the mine development carried to a point where the measure "tails" down to a thickness that will not permit of economical production—no other deposit lies adjacent and some miles may be traversed before another may be found.

In many instances quicksand overlies the deposit, the thickness of which varies from 100 to 200 ft. This measure, of course, does not lie directly above the coal, but it must, nevertheless, be taken into account in the sinking of a shaft. Almost without exception the roof encountered is a soft slate, highly susceptible to the variations of temperature induced by the changing seasons. This cover usually contains a considerable percentage of lime, so that during the summer months when globules of water are deposited upon it by condensation, it readily flakes off or "weathers" and quite as readily expands. Later it contracts and leaves large fissures. These cracks mark off large-sized slabs which eventually fall to the floor.

SOMETIMES ROOF FALLS DESPITE CEMENT COVERING

Operators with varying degrees of success have tried covering the roof and rib with "gunite." The flaking process induced by the action of the water on the roof may be stopped, but this is not always the case with the contraction and expansion, and in many instances the roof will come down despite its cement covering, although not as readily as when it is left bare.

As a result large quantities of timber are used and retimbering becomes a frequent and expensive neces-

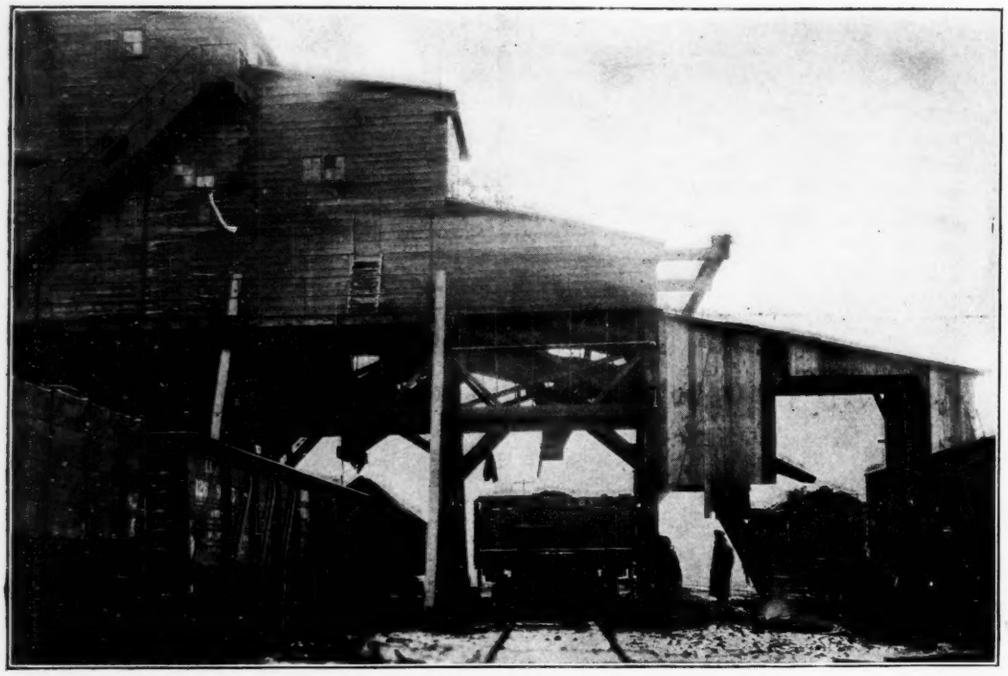


FIG. 2

Under the Tipple

This tipple at Melcher never experienced the effect of the general coal shortage. Cars always were obtainable. Timber construction is quite usual in Iowa, the uncertainty as to the persistence of the coal seam making it advisable, except where there is a possibility that the tipple may be erected somewhere else when its work at any one plant is completed.

sity. This work alone is of a character and extent that will justify the utilization of only the shortest of haulageways. When a long haulageway is maintained, the upkeep costs soon become excessive, and it proves more economical to sink a new shaft than to attempt the removal of the coal through an opening located some distance from the active workings. Of course, the sinking of a new shaft is justified only when the basin of coal under development is of sufficient size to warrant this expenditure.

Irregular and Heavy Grades Encountered

As stated, the beds roll to a remarkable degree and it is not uncommon for the measure to suddenly pitch up or down on a 40-per cent gradient. By reason of the natural obstacles to be overcome—and these can never be forecast accurately—it is well-nigh impossible to lay out a mine on paper and to follow the plan adopted, as is commonly done at large operations in states further east. Working the coal and developing the mine is pretty much of a "from-day-to-day" proposition.

The coal varies from 4 to 9 ft. in thickness, but may be prematurely pinched out altogether. Furthermore, faults are of common occurrence, and even with the aid of the large number of drill holes necessary to careful prospecting these faults cannot be forecast with any degree of certainty. Few of the operators of the state, therefore, care to purchase or lease coal. It must be developed on a royalty basis if the mine owner is to be induced to make an attempt at mining the elusive mineral, for the deposit thought to uniformly underlie a certain farm may be found wanting when development has been carried to a certain point underground.

I have mentioned some of the more pertinent reasons why large-capacity plants in this state are unknown. These embrace chiefly the nature of the roof and the deposit itself, which make a small plant the more economical. As soon as operations have progressed to some distance from the bottom, the cost of mining per ton begins to increase and in a short time it is seen that to sink a new shaft will be less expensive in the end than attempting to haul the coal long distances in small trips, over heavy grades and through entries that demand constant retimbering in order to be kept safe. In Iowa a plant producing 2,000 tons a day is unusual, although such developments are becoming more numerous. The life of the average mine is not, however, increasing.

Formerly nothing but wooden headframes and tipples were constructed. Now steel tipples are finding greater favor among companies which expect to continue in business for many years to come. After the mine has outlived its period of economical production the steel structure is torn down and shipped to some other section of the state to be reassembled and again put to work. With such repeated use the steel tipple is not an unduly expensive piece of equipment.

Fortunately the operators of the state do not have to contend with every conceivable ill to which mining is subject. The workings are free from gas and open lamps may be freely used. No great amount of water is encountered, which would entail serious pumping problems. Of late, at least, dust explosions have not occurred, yet no extensive sprinkling arrangements are provided to forestall them.

Railroads Co-operate with Coal Mines

To a large degree the railroads of the state as well as the interurban electric companies aid in the development of the coal by taking the product for their own use. If this co-operation did not exist, the operators would have to compete in a spot market with fuel from Illinois, and they readily admit that the Illinois producers are able to mine and ship coal into Iowa, selling it a lower figure than Iowa operators can reach. As it is, not every mine in the state is a success, and a number have been in the hands of receivers on more than one occasion. It is contended, however, that these failures have been the result of the directors having entrusted the reins of management to men who were experienced in mining in the East but unfamiliar with conditions in Iowa.

A short description of the more important features

of an average Iowa mine may be of interest. The plant of the Red Rock Coal Co., an operation four years old, located near Melcher, in Marion County, is a typical example. From information that I gathered elsewhere and from what I saw myself, I believe that the Red Rock mine is better than the average operation of the state from the standpoint of equipment. Furthermore, it has a greater output, being equipped for a daily capacity of 1,200 tons. The Red Rock firm purposes to develop an 1,100-acre tract of coal, but the officials are not making any predictions at present that their expectations will be fulfilled.

Undried Coal Gives 11,000 Thermal Units

The coal being worked is known locally as the "lower Iowa" bed and varies from 4 to 6 ft. in thickness. A proximate analysis of the product will run about as follows: Moisture, 16.6 per cent; volatile combustible matter, 28.4; fixed carbon, 45.4, and ash, 9.6 per cent. The sulphur content as separately determined is approximately 3.3 per cent. A sample of the coal taken from the face and dried before being analyzed had a heat value of about 13,020 B.t.u.; one taken and analyzed as it comes from the mine will show approximately 10,860 B.t.u. The Chicago, Rock Island & Pacific R.R. Co. takes 50 per cent or more of the daily output for locomotive fuel.

All the surface buildings at the Red Rock mine, including the headframe, are constructed of wood. The shaft is 275 ft. deep and is wood-lined to the bottom. Cars which, level full, will hold a ton of coal are used throughout the mine, but if conditions will permit they may be loaded so as to contain upward of 4,000 lb. of coal. Why such a small-capacity car is employed is obvious. The coal varies greatly in thickness and it would be impossible in many instances to get a high car or one built for a larger capacity into a room in which low coal is being mined unless the top is taken down, and, of course, this brushing would be expensive. As has been mentioned, the coal bed rolls heavily, and grades in certain sections of the mine which the locomotives must traverse are so steep that only a comparatively small weight can be handled efficiently per trip.

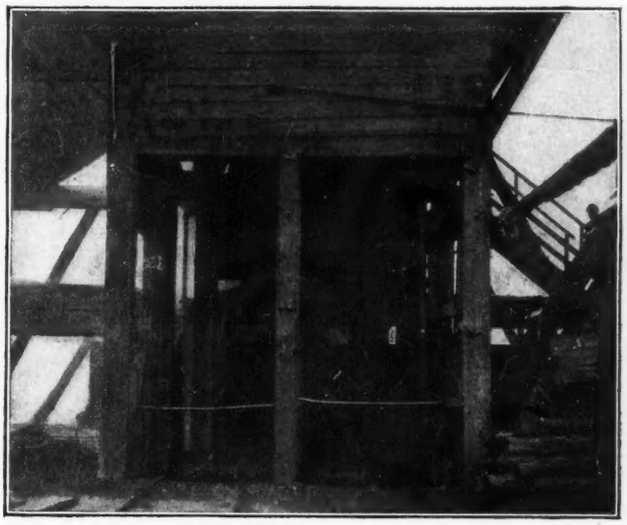


FIG. 3. MAIN HOISTING SHAFT HAS TWO COMPARTMENTS

Both men and materials are lowered through this shaft, which is used also for hoisting coal. This shaft is timbered to the bottom.

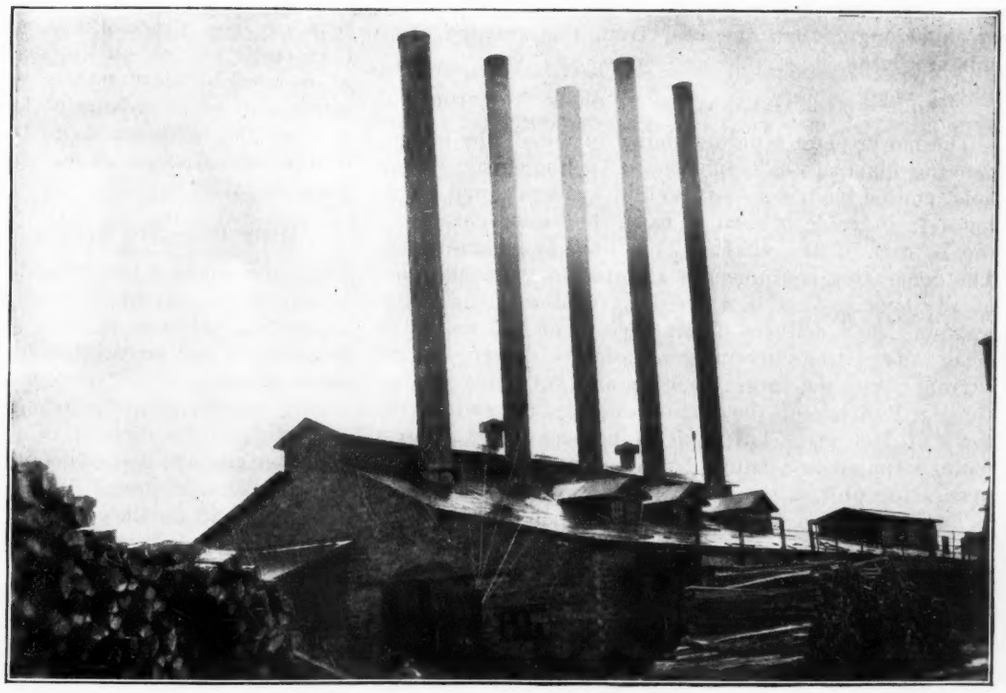
Cars caged at the bottom are elevated to a dumping platform on the tipple 60 ft. above the shaft collar. Olson self-dumping cages are employed. These discharge the contents of the car onto a dump plate, whence the coal passes by gravity to a weigh basket by way of a hopper. All the preparation equipment on the tipple was built by the Eagle Iron Works of Des Moines. A single shaker screen is employed, provided with perforated plate and spaced bars. This is operated by an 8-hp. motor operating on a voltage of 220. By changing the perforated-plate section of the screen, as many as five distinct sizes may be made. Usually, however, a 1¼-in. nut and a 7-in. lump are prepared.

After sizing, loading is accomplished by gravity. By

FIG. 4

Boiler House

In the foreground is the timber yard. Any miner wandering round the yard and seeing the long props in the foreground would draw the just conclusion that it is a good place to work. Boilers and electrical equipment are all under the one roof but separated by a brick partition.



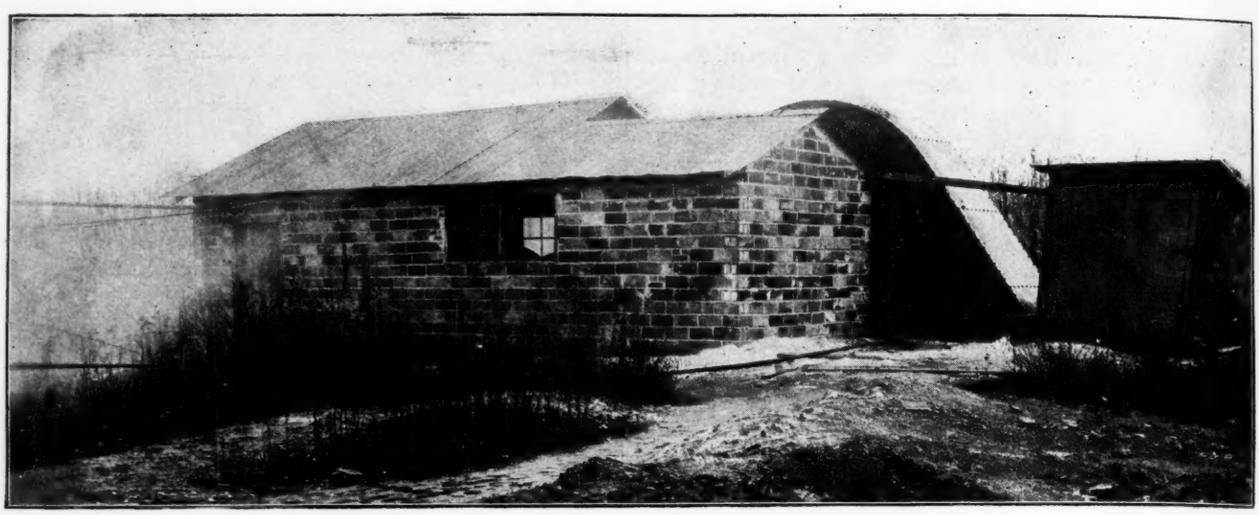


FIG. 5. TILE FAN HOUSE AND STEEL-ENCASED FAN

Normally the fan is operated by electrical energy. During the night, however, when the main generating unit is down, the ventilator is kept in operation by a small steam engine. The fan is a 6 x 3 ft. Jeffrey and is run at 240 r.p.m. The airshaft is relatively dry and the air does not have to be heated during the cooler months as at the Norwood-White mine at Moran, Iowa.

means of hinged drop plates, forming a part of the shaker itself, the screens may be veiled and the entire mine output loaded as a straight run-of-mine product into cars on either of three tracks that pass beneath the building. No attempt is made to pick the coal on the screen. All impurities that may find their way up the shaft are left in to be detected and removed by the man who trims the cars.

By raising a section of the screen that precedes the perforated plate and the bars, a certain amount of run of mine is directed into a chute leading to a storage bin which supplies the boilers with fuel and satisfies the domestic trade of the town of Melcher. A short wooden trestle connects the tipple with the boiler house, so that it is possible to fill mine cars at the storage bin and move them by hand to the boiler-house dump. No loading booms are in use. Ordinary chutes are used to discharge the coal into the railroad cars. However, little degradation results, as the coal is physically much stronger than the coal from the average bituminous mine.

Boilers and Generators in Same Building

The power-plant building shown in one of the accompanying illustrations is of wood. An Eagle Iron Works hoist engine having a 5½-ft. cylindrical drum and winding a 1¼-in. cable is used to raise the loaded cars from the bottom of the shaft. This unit is steam-driven. The generating equipment is situated in the same room as the hoist. This is a 200-kw. turbine-driven Ridgway unit, and delivers direct current of 275 volts. A small alternating-current generator is driven by the current from the large machine and furnishes energy for the lighting of the plant buildings as well as the town of Melcher. This unit is belt-connected from a motor situated in a wing of the building near the main generating unit.

The boilers are under the same roof as that housing the electrical equipment but are separated from these units by a brick partition. Four Galesburg boilers and one Kewanee, each having a rating of 100 hp., deliver steam for the operation of the hoist engine, the direct-current generator and an engine driving the fan. All the boilers are hand-fired from bunkers located in front of them. The coal, as already stated, is dumped directly into the building from mine cars running on a trestle parallel with it. The "shops" are all located in one building near the main shaft and the equipment, being simple, does not warrant any detailed description.

The fan house is situated a considerable distance from the main shaft. It houses a 6 x 3-ft. high-speed Jeffrey ventilator. Under normal conditions the fan is operated at about 240 r.p.m. so as to deliver approximately 65,000 cu.ft. of air per minute. It is driven by a 50-hp. belt-connected Westinghouse motor. The large generator situated in the power-plant building is run only during daylight hours or rather up until 11 p.m., after which the town is without lights. During the time when current is not available the fan is kept in operation by a single-cylinder steam engine. Consequently air is delivered to the mine at all hours. The utilization of steam for the operation of auxiliary fan drive is a common practice around gaseous mines, but at this operation no gas is encountered; the ventilator is operated at night merely to assure the underground workers of an abundance of fresh air when they return to work the following day. It is the only place outside of the power house where steam-driven apparatus has been installed.

Mine Operated by Room-and-Pillar System

On the surface the mine is not greatly different in layout and appearance from many of the older operations in other regions. The arrangement underground, however, is far more interesting, as it is here that unusual conditions are encountered. These, of course, result mainly from the character of the coal deposit and the stratum directly overlying it.

All entries are driven double and the coal is developed on the panel system. The loaded and empty storage tracks extend northeast and southwest from the shaft; the main haulageways are laid out square with the four points of the compass. Locomotives coming from any section of the mine eventually enter either a west or east main haulageway that leads to the storage tracks. If the trip is brought in on the west side of the shaft, the loaded cars are caged from that side,

the same condition holding true for trips that are brought in on the east haulageway. In either case the loaded tracks have been laid on a grade that will permit the cars to be run to the shaft by gravity, the empty tracks also lying on a grade in favor of the empty cars. This means of handling the cars at the shaft bottom has necessitated taking up the floor along the empty tracks in order to obtain the desired grade. A switch is provided near the landing so that the loads may be caged in either compartment of the shaft. The shaft "bottom," including both storage tracks, is heavily timbered.

Heavy Grades Found on Main Haulageways

As has been noted as typical of Iowa, the coal bed does not assume any uniform dip and almost any slope may be encountered. For example, there is a section of the west haulageway that lies on a grade of 8½ per cent for a distance exceeding 400 ft., while on the main east roadway a slope of 7½ per cent is maintained for over 500 ft. Both of these grades, fortunately, are in favor of the loaded cars.

A trip of average size is composed of twenty cars. These are handled by a 6½-ton Goodman locomotive, two of which are now in use in this mine. Just how to get the loaded trips to the bottom over the grades above mentioned proved to be quite a problem until the device now in use was given a trial. In near-by mines it had been the practice to sprag the wheels of a trip when it was passing down a steep slope. This was tried but did not prove economical, as it soon flattened the car wheels so that they had to be replaced. Furthermore, this treatment was injurious to the car itself and made frequent repairs necessary.

Skid the Car Trips Down the Long Hills

Fig. 6 shows what might be called a car skid. This device, designed to prevent flat wheels, is built at the company shops. These skids are about 3 ft. long and built of an old piece of angle iron, one leg of which is cut down and flattened out so as to act as a flange under the car wheel, as shown in the illustration. Four of these skids are employed in moving a trip of loaded cars down the grades on the east and west haulageways. Two are put under the rear car of the trip and two under the third or fourth car from the front. A somewhat similar skid has been used on a steeply inclined road between the tipple and a drift mouth at Mageath, Wyo.

The locomotive is then able to control the cars to the bottom of the slope. The skids are adjusted under the wheels at the top of the hill and removed at the bottom by the trip-rider. When the locomotive returns with a string of empties, the skids are picked up by the rider and thrown off at the top of the slope to be used on the next returning trip.

The coal under development at Red Rock is more or less faulted and in many instances is thrown either upward or downward from 2 to 3 ft. A larger fault plane than those mentioned has been found in test drill holes that have been put down, but so far this has not been encountered in the mine. The roof is a friable slate that has been laid down with great irregularity. In many places the coal may be pinched down to 6 in. in thickness, after which it may or may not quickly regain its normal height.

When such conditions are encountered on the main haulageways the entries are, of course, driven through the slate. In a room, however, when such a pinch is met the place is, of course, abandoned. An attempt is later made to drive other rooms toward the one abandoned. Sometimes the coal is picked up, so that but little is lost, and at other times the pinch may extend over a considerable area. This accounts for the irregularity of some of the panel sections in this mine. An attempt is made, however, to space all face entries 750 ft. apart. Perhaps the only bed in the State of Iowa that can be regarded with any degree of certainty is the Mystic bed in Appanoose and Wayne counties, and even this contains old river channels.

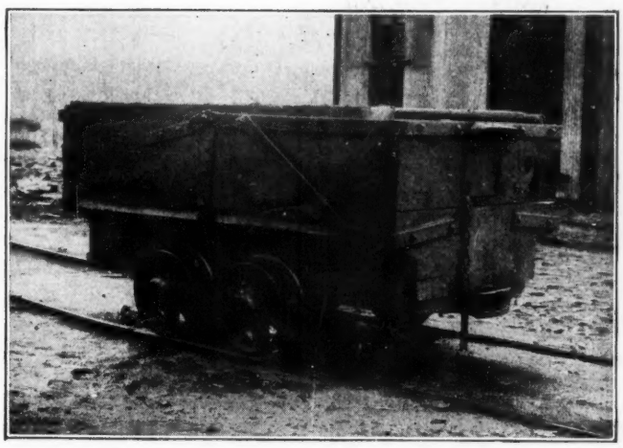


FIG. 6. MINE EQUIPPED WITH SKID

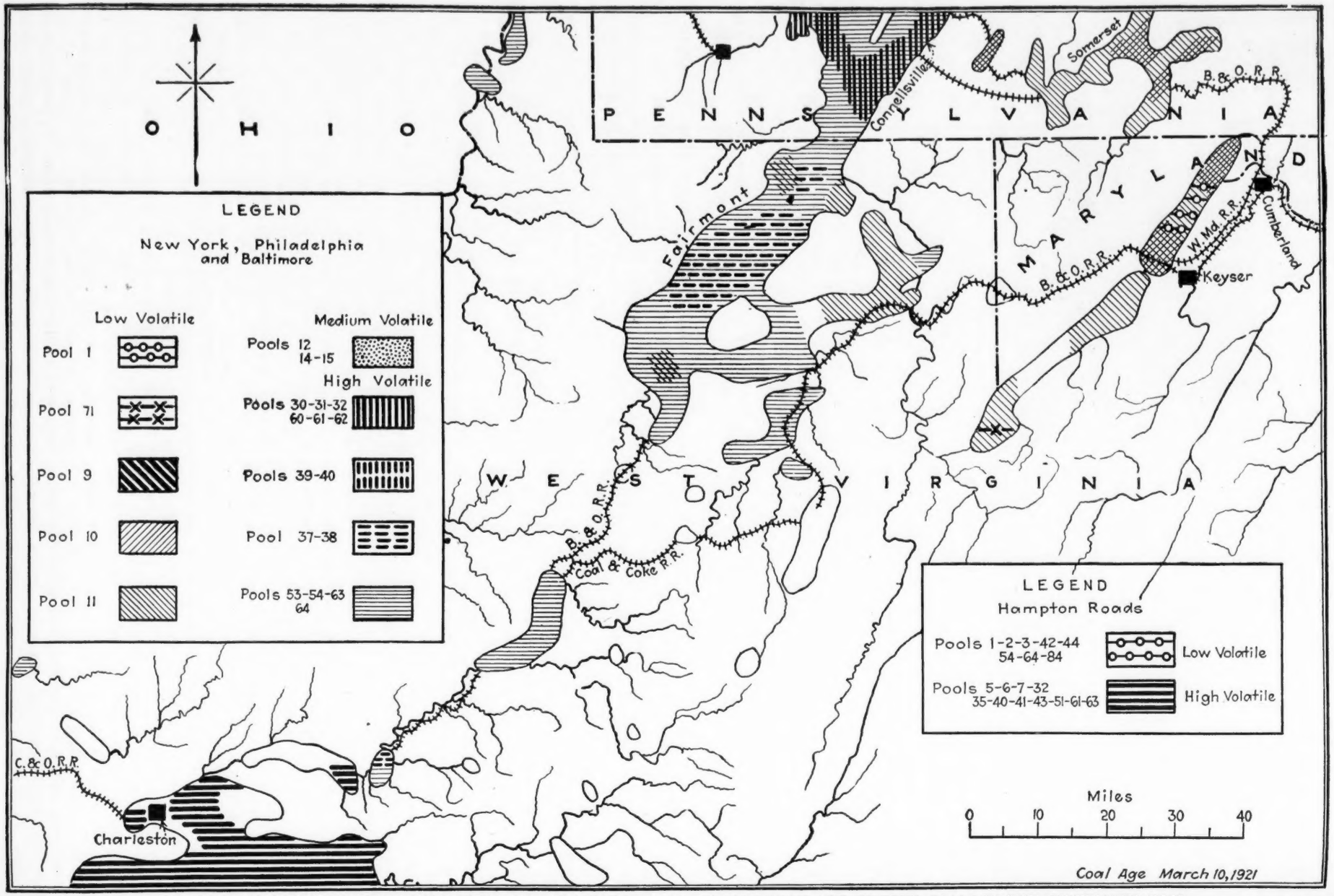
One of the skids shown in the illustration is placed under the wheels of two cars in each trip, thus making spragging unnecessary. The skid will last about a month, but it will save a number of wheels from wearing flat.

Automatic Motor Starter Has Accurate Time Limit Acceleration

AUTOMATIC motor starters are now being manufactured in larger and smaller sizes. The Cutler-Hammer Manufacturing Co., of Milwaukee, Wis., which recently redesigned its automatic starters, has replaced its air dashpot by one working with oil. However, an air dashpot can still be provided to those who desire it. The solenoid, plunger and rocker arm have been retained.

The new starter is made in capacities from ¼ to 10 hp. at 115 volts, and up to 25 hp. at 230 and 500 volts. The 500-volt sizes are more compact than formerly. The oil dashpot is completely covered, so as to be splash proof, and is adjustable for time by an external screw. When this is once set, the starter will always cut out the resistor in the same length of time. A non-freezing dashpot oil is used, so that temperature conditions will not affect the length of time required for starting. The fingers on the rocker arm are of standard C-H drum construction and, like the contact buttons, are renewable. The starter can be controlled from any remote point by a single pole knife or snap switch, pressure or vacuum regulator, float switch, or by three-wire push-button control. Low-voltage release is inherent with two-wire control and low-voltage protection with three-wire.

The starter is mounted on a slate panel carried on a pressed-steel wall frame, with the starting resistance self-contained. A starter of this type (time-limit acceleration) is particularly adapted for starting direct-current motors carrying loads that are likely to vary between wide limits and where remote control is desired, such as with pumps, fans, compressors and similar devices.



MAP SHOWING PRODUCING DISTRICTS IN NORTHERN WEST VIRGINIA FROM WHICH ARE SHIPPED COALS IN THE TIDEWATER POOL CLASSIFICATIONS AT THE PORTS OF BALTIMORE, PHILADELPHIA AND NEW YORK

Where Classified Tidewater Coals Come From

Fifty-three Recognized Pools Include Twenty-nine Mine-Run Classifications, Seven Slack and Seventeen Lump—Although Pools Overlap in Field, There Is a Definite Geographic Distribution

By Dr. Henry M. Payne*

THE idea of pooling bulk shipments of commodities in order to avoid demurrage in loading probably originated at the grain elevators of the West, where grades were established and grain inspected and classified, and then pooled according to grade. During the war, in order to conserve railroad equipment, expedite loading of vessels, and minimize demurrage on both vessels and railroad cars, the same plan was applied to coal taking transshipment at Lake Erie and at North Atlantic ports.

The Ore & Coal Exchange at Lake ports was started in June, 1917. This proved so satisfactory that the Tidewater Coal Exchange was put in operation at New York, Philadelphia, Baltimore and Hampton Roads on Aug. 1, 1917. By Nov. 11, 1917, its advantages were so obvious that pooling was made compulsory, under government operation, which arrangement continued until Feb. 28, 1919. The Exchange then became a voluntary organization and was so operated until Feb. 25, 1920, when compulsory pooling was again enforced up to April 30, 1920, after the roads had reverted from the Railroad Administration to their owners.

In response to a general demand for the perpetuation of the machinery of pooling, the Tidewater Coal Exchange, Inc., was then chartered under the laws of Delaware, to operate at the ports of New York, Philadelphia and Baltimore. Independent exchanges were created at Hampton Roads for the piers at Sewall's Point, Lambert's Point and Newport News, served by the Virginian, Norfolk & Western, and Chesapeake & Ohio railroads. The Baltimore & Ohio, Western Maryland, Pittsburgh & Lake Erie, Cumberland Valley, Cumberland & Pennsylvania, Pennsylvania, Monongahela, Philadelphia & Reading, New York Central, Buffalo, Rochester & Pittsburgh, Cambria & Indiana, and Pittsburgh & Susquehanna railroads serve the three northern ports and share with the coal shippers the expenses of operation of the exchange up to a predetermined maximum. A new exchange recently was organized for the port of Charleston, S. C., served by the Southern Railway from mines on its own lines and the Louisville & Nashville, and Carolina, Clinchfield & Ohio railroads.

The various grades of low, medium and high volatile bituminous coals were originally grouped as correctly as the information at hand would permit, and upon this basic grouping has been developed the present set of classifications, recognized both in the United States and abroad as the most complete descriptive tabulation of Eastern American coals ever prepared.

Under this classification it is attempted to so regulate the variance in any one pool that the difference between the best and the worst coal in that pool shall not exceed the difference between the best and worst coal shipped by any mine classified in such pool. While certain lines of demarcation naturally segregate the low from medium, and medium from high volatile coals, and similarly, sulphur and ash content regulate the gradations from gas to steam coals, yet certain tolerances must always obtain, such as calorific values, fusing point of ash, etc.,

The three maps accompanying this paper show in graphic form the developed areas in the coal fields of the East from which come the coals of each important classification or pool. There are in all 53 recognized pools, of which 29 are "mine-run" classifications, 7 slack or screenings, and the remainder are lump coal or modified mine-run. For instance, mine-run coal from certain mines is pool 44, but if the product of these same mines is screened, the slack is shipped as pool 45 and the lump as pool 43. On the maps are shown the developed coal fields and in pattern the areas from which come the better grades of coal included in 20 mine-run classifications in 11 groups. That is, pools 1, 2 and 42 in the smokeless fields of southern West Virginia are shown in one pattern covering the entire producing area, although mines classified in pool 4, a lower grade coal, also are scattered throughout the same area. Likewise the area in which is located all mines producing pools 5, 6, 7 and 40, mine-run, coal is shown as one pattern, although including mines producing pool 8.

Mines on Navy List Classified as Pool 1

In the Northern fields are 34 mines on the navy acceptance list, classified as pool 1, for each of which an individual symbol is shown, as are also shown mines in pool 71, the supplemental list of the navy. The portions of fields from which comes coal classified in pools 9, 10 and 11—the mine-run pools for high-grade low-volatile coal reaching the northern ports—are each shown by distinctive pattern, which in some locations overlap. It will be noted that with the exception of pools 1 and 71 the patterns in the maps show low-volatile coals with diagonal lines, intermediate or medium volatile coals with a stipple and high-volatile coals with horizontal or vertical lines.

To prevent confusion in the graphic presentation on the small scale necessary no attempt has been made to show the areas producing the lower-grade coals, as pools 18 and 34. In this way 10 of the 53 pools in the list are omitted and 43 shown. In some instances in the northern fields, particularly in Pennsylvania, no pattern is shown on sections of the fields in which there are producing mines. Such areas are those left blank within the lines marking the outlines of fields, the coals produced in these areas being either classified in one of the lower grade pools or not classified. The several areas shown on the maps were determined by locating all mines of a given classification and covering the areas thus indicated by suitable pattern.

Next week there will be published tables of analyses with descriptions of the pools, giving names of coal beds from which each grade is mined, railroads originating each classification and other information serving to distinguish the various grades of coal.

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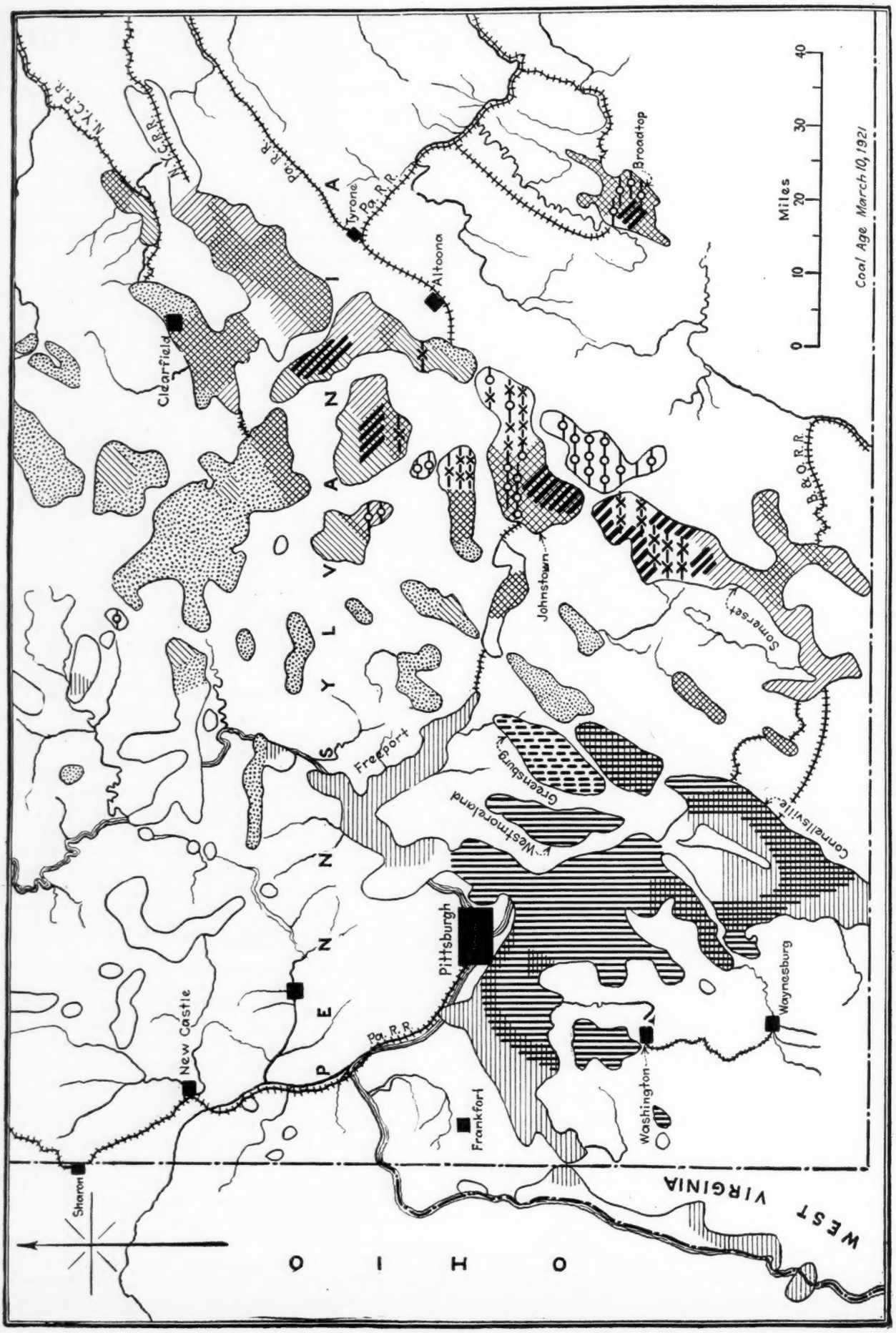
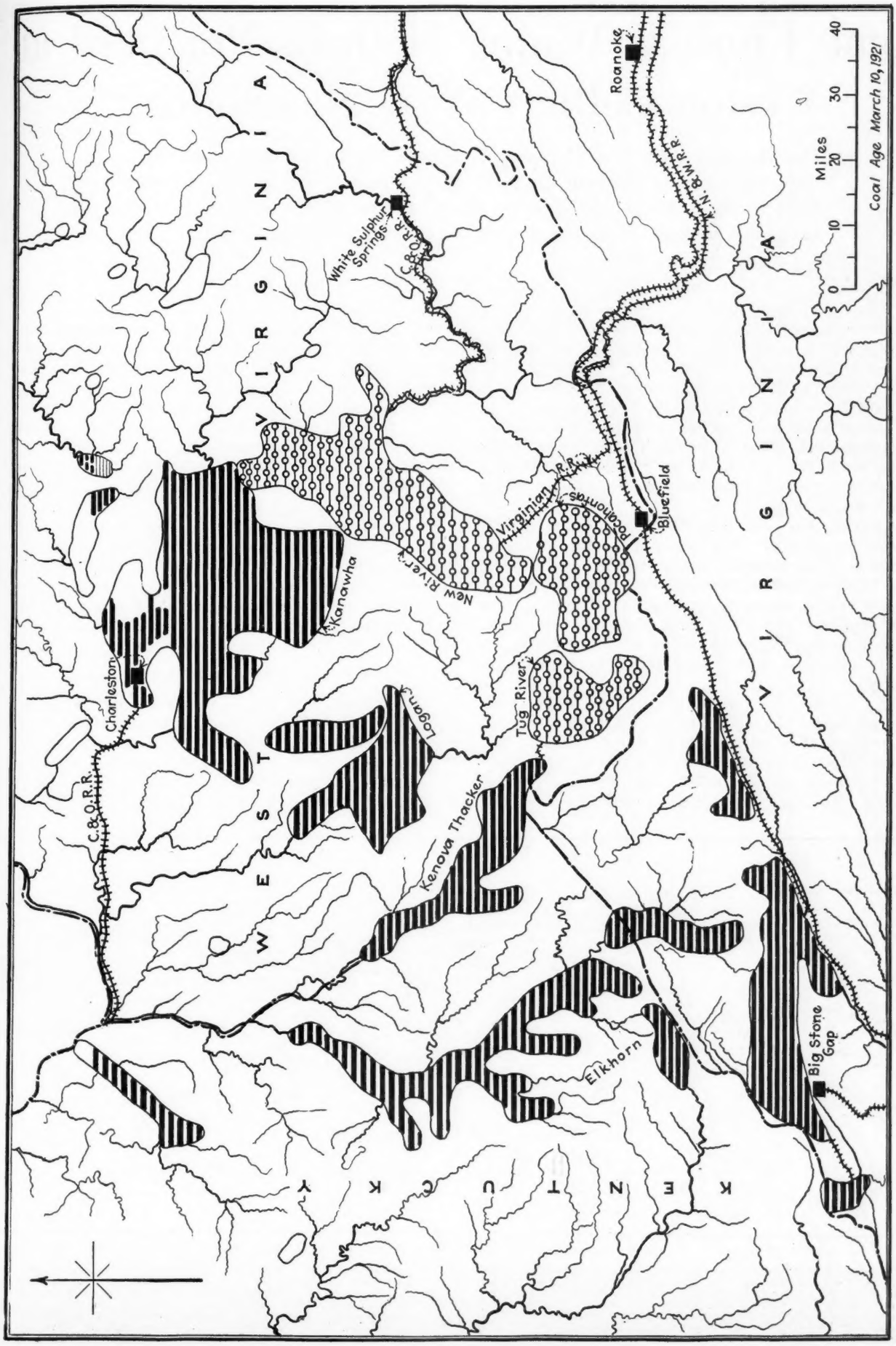


MAP SHOWING PRODUCING DISTRICTS IN PENNSYLVANIA FROM WHICH ARE SHIPPED COALS IN THE TIDEWATER-POOL CLASSIFICATIONS AT THE PORTS OF BALTIMORE, PHILADELPHIA AND NEW YORK



MAP SHOWING PRODUCING DISTRICTS IN SOUTHERN WEST VIRGINIA, VIRGINIA AND EASTERN KENTUCKY FROM WHICH ARE SHIPPED COALS IN THE TIDEWATER-POOL CLASSIFICATIONS AT THE PORT OF HAMPTON ROADS

Some Unusual Mining Methods Practiced at Weston Colliery Near Shenandoah

Ventilation Almost Wholly Natural—Pumps Used Only for Local Dips—Crop Stripped to Prevent Dirt Entering Mine—Drag Scrapers Draw Coal to Rock Holes—Method of Working Two Seams with Three-Foot Interval—Barney Has Telescoping Gage—Thaw Sheds for Mine Cars

By Dever C. Ashmead
Wilkes-Barre Pa.

IT IS rather unusual for an anthracite mine to be worked exclusively from a tunnel. Most of them require the sinking of a shaft. The coal deposit being worked by the Locust Mountain Coal Co. at its Weston mine, near Shenandoah, Pa., lies in such a shape that it was possible by driving a tunnel for a distance of approximately 3,800 ft. to reach what is practically the bottom of the coal basin. It is true, however, that the coal in one or two local dips is lower than the lowest point reached by the tunnel.

As already has been described in a previous article, the coal measures lie in a basin on the top of Locust Mountain. Five workable measures exist on this property. Of these, the Mammoth, Skidmore and Seven-Foot beds are readily extracted by means of stripping. The Buck Mountain and Little Buck Mountain beds, however, are operated by underground mining methods, except in one case, where even they can be and are stripped.

Fig. 1 shows the outcrop of the bed in the main mountain basin. As might be expected, the lower measures outcrop at widely-separated points. Under existing conditions, it is found that at no point is it necessary to work the Mammoth bed by underground methods. The next underlying measure, the Skidmore, is stripped toward the eastern end of the property, but to the westward the measures pass below greater cover and accordingly are mined from underground. The next bed lower down is the Seven Foot, which extends in one continuous basin from one end of the property to the other. It is possible to strip the eastern end of this coal measure, but not the western end. All of the Buck Mountain and Little Buck Mountain deposits are worked from underground, except at the western end, which is stripped over a limited area.

The upper beds do not lie in one continuous basin but in several basins, two of which are far more important than the others. In Fig. 1 the road to Ringtown will be noted. To the east and west of the point where this road crosses the property the coal measures spoon out, both the Mammoth and Skidmore outcropping at this point, while the Seven Foot outcrops nearby.

Rock Holes Driven Up from Bed to Bed

Again referring to Fig. 1, it will be seen that practically all the main levels lie in the bottom of the Little Buck Mountain bed. The original plan for working this coal was to drive rock holes up from these headings to the overlying measures, three breasts being driven in each bed from one of these rock holes. These breasts

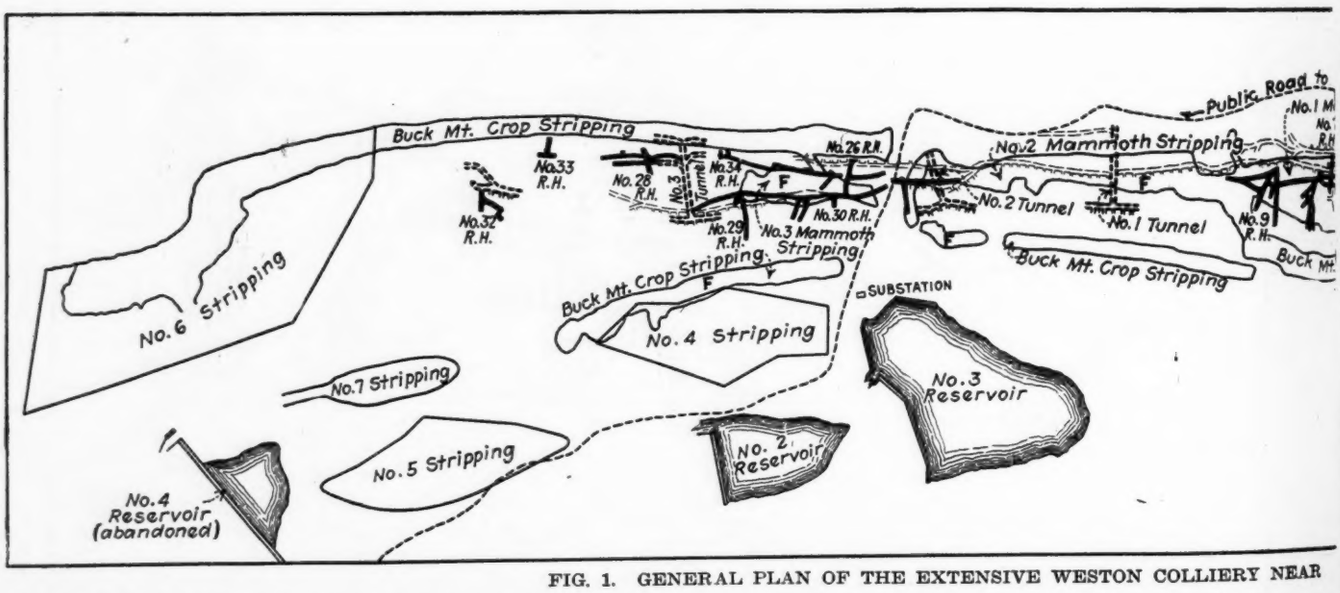


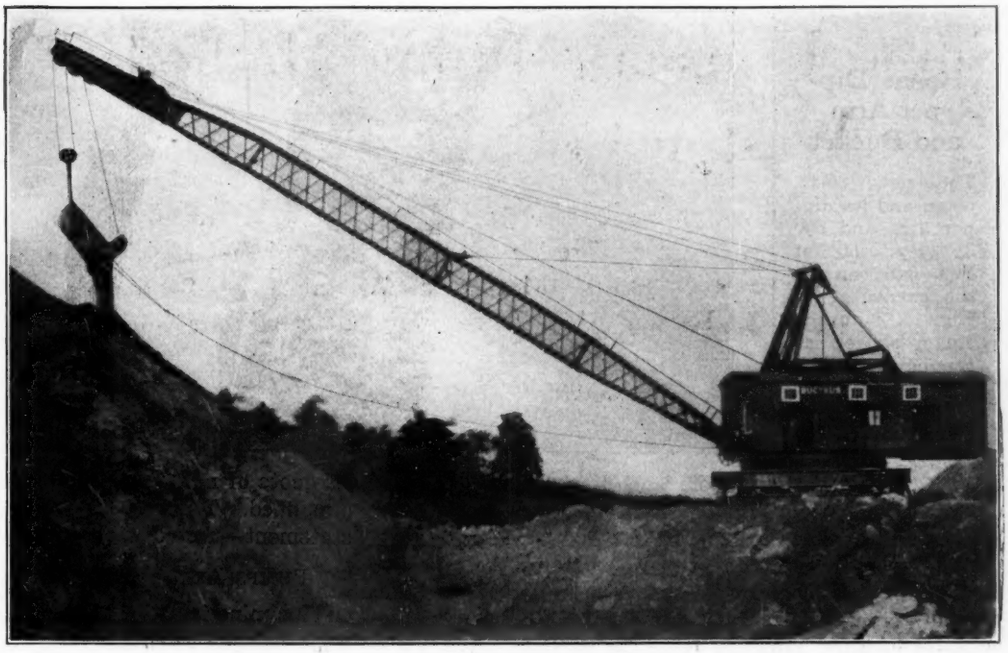
FIG. 1. GENERAL PLAN OF THE EXTENSIVE WESTON COLLIERY NEAR

One of the most interesting features is the Main Water-Level Tunnel, near the center of the illustration. As it is driven so as to strike between 200 and 240 ft. below the surface it practically drains the whole area. Occasionally the Little Buck Mountain seam descends to greater depths and so creates a trifling pumping problem, but as compared with other anthracite operations the Weston colliery is greatly favored. It escapes almost entirely all hoisting, pumping and ventilation problems. In the area marked "East Basin Stripping," note Tunnel No. 6, which, of course, is far below the bottom of the strip pit. A long tunnel driven in what is here a worthless seam—the Lykens—will ultimately connect Tunnel No. 6 with the Main Water-Level Tunnel draining the former, the counter levels now connecting these points being at too high an elevation to perform that service. The locations of

FIG. 2

Dragline Excavator

This machine, which is being used to uncover the outcrop of the coal, has a 125-ft. boom and a 3½ cu.yd. bucket. It is the universal experience that all coal which does not crop on the slipping sides of a hill but comes up abruptly to a level surface will be found in good condition clear to the top.



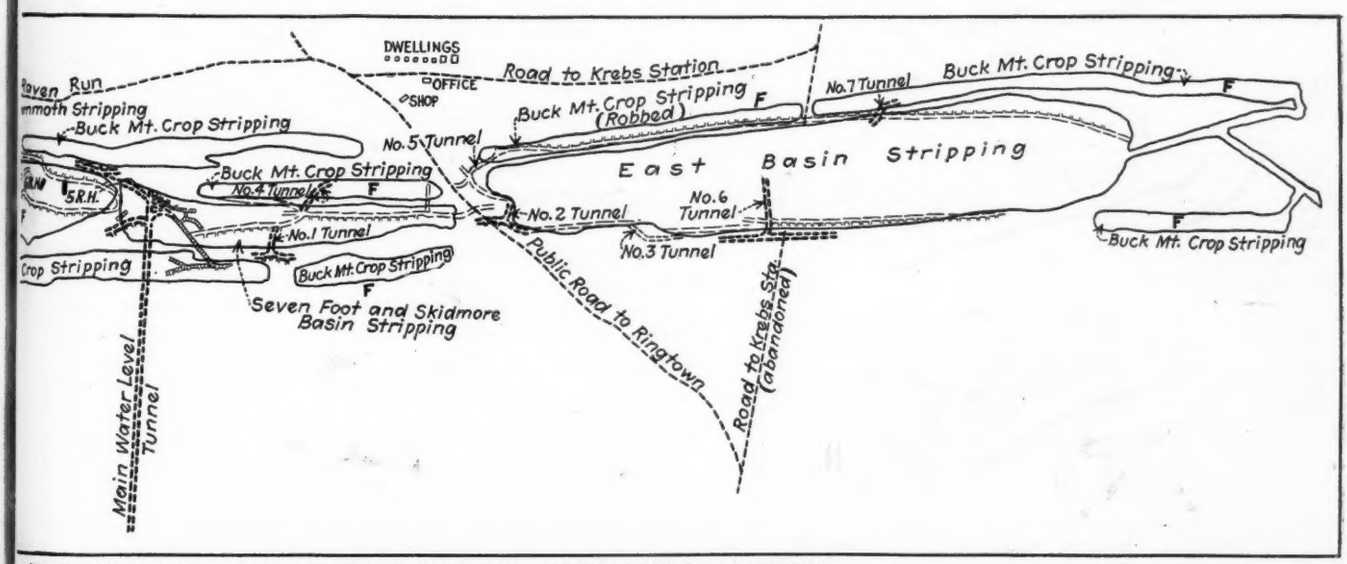
were to be extended to the surface as soon as those in the upper measures were completed. Then robbing was to commence, and the rock holes were to be finished as soon as possible and abandoned. This method was successful and economical except for the fact that all loading had to be done on a single gangway, and this limitation tied up the transportation facilities overmuch and did not furnish sufficient working and loading places.

When this plan was abandoned, the idea of driving fewer rock holes was adopted. From such as were driven a counter or buggy gangway was excavated in each bed. From this roadway in turn breasts were driven to the surface. By this method one rock hole could be made to serve as many as ten or more breasts in each bed, as against three by the original plan. In each of these gangways was placed a small buggy of the end-dump type capable of holding one-third as much as a mine car. This was used to transport the coal from the breast chutes to the rock hole. A common horn dump was employed to discharge this car.

Strip Crop to Keep Dirt Out of Coal

In order to keep the coal free from surface dirt when the breasts broke through to daylight, particularly in the case of the Big Buck Mountain bed, it was considered advisable to strip the surface along the outcrop. For this purpose a Bucyrus dragline excavator with a 125-ft. boom and a 3½ cu.yd. bucket was employed. Fig. 2 shows this machine at work on the outcrop of the Big Buck Mountain bed. The bucket is here shown in the act of dumping.

As soon as the dragline finishes the work on which it is now operating it will be converted into a shovel.



SHENANDOAH, PA., WITH ITS STRIPPINGS AND UNDERGROUND WORKINGS

the rock holes are shown by the letters R. H. In many places will be noted the words "Buck Mountain Crop Strippings." These lengthy strippins are not made so as to permit the coal to be loaded out by the customary surface methods, for the coal thus uncovered is to be extracted by underground mining. The surface is removed, so that when a room reaches daylight the loose sand and gravel will not enter and mix with the coal, to the great discomfort of the force at the breaker and at a great expense for the transportation of this material. By making this stripping all the coal can be removed and still there will be no loss by reason of the entry of surface material. The solid material of the top of the mountain has been covered by a troublesome deposit of glacial drift, which has to be reckoned with when the workings approach the surface.

FIG. 3

Boom, Dipper-Arm and Bucket

The new 85-ft. boom and its dipper arm and the 3½ cu.yd. bucket that will convert the excavator in Fig. 2 into a steam shovel, as soon as it finishes the work of uncovering the crop.

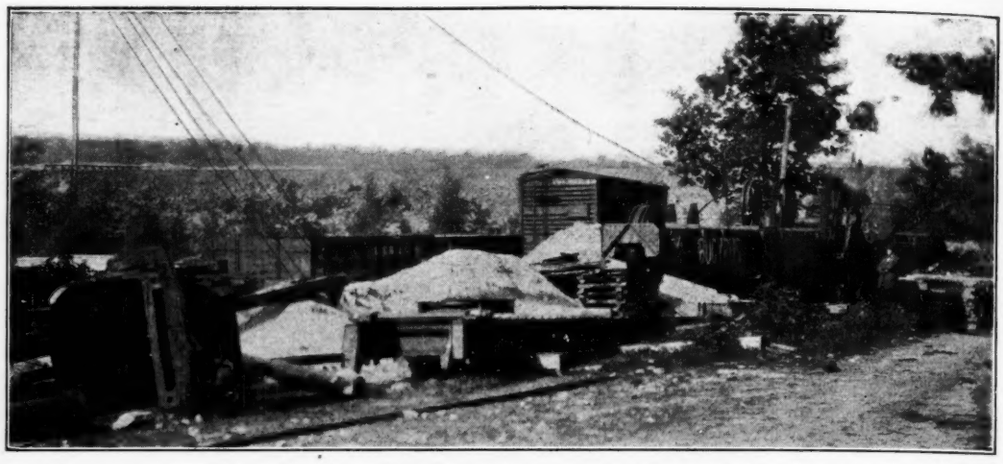


Fig. 3 shows the new boom and dipper arm, also the bucket. This boom will be 85 ft. long, while the new bucket will have a capacity of 3½ cu.yd.

When the surface over the Buck Mountain bed has been stripped and the breasts have been driven through to the stripping it will be possible to look down to the main or counter gangway from the surface. By means of this stripping of the crop the coal is kept free of all surface material, thereby appreciably reducing the work of the breaker. More complete extraction will be effected, as no supports need be left to hold up the surface soil. In drawing pillars the upper measures are removed first and thus no coal is lost in any bed because caves have occurred in a measure below it.

Only in the Little Buck Mountain bed is mechanical haulage in use, for all the coal in the measures above is sent down to that bed by means of the rock chutes already mentioned, where it falls into mine cars which have been placed in the gangway to receive it. As the locomotive does not have to enter working places to get its quota of mine cars, the gathering of the coal is much simplified. There are a few exceptions to this general statement—these will be mentioned later.

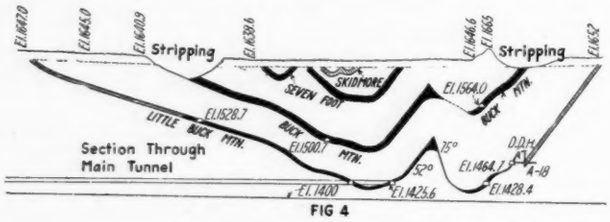


FIG 4

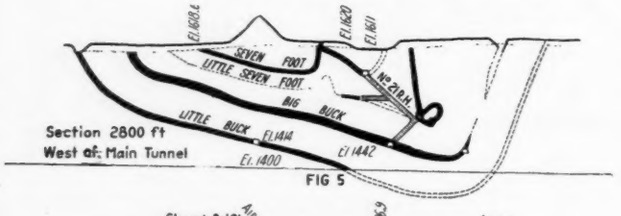


FIG 5

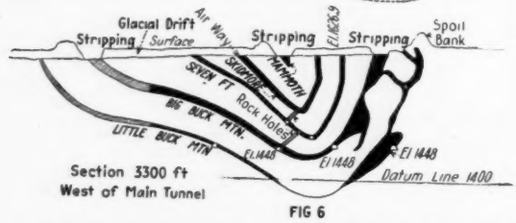


FIG 6

FIGS. 4, 5 AND 6. THREE CROSS-SECTIONS OF THE MEASURES AT THE WESTON COLLIERY

Note how rock movements have pinched out the coal in places and bunched it in others, and in one place have caused real veins of coal to be formed in the rock between the beds, the plastic material, being squeezed up into crevices. In all soft measures, as peats and clays, severe folding invariably resulted in transference of material from its "locus of deposition," if that term may be excused.

Pumps Are Used Solely to Drain Local Dips

This mine is somewhat unusual inasmuch as no pumps are employed in its dewatering, except one or two small units to void the water from small local dips. The conformation of the measures is such as to render it possible to drain by gravity the entire mine with the exceptions above noted. Furthermore, the ventilation is natural, and except in one or two small sections no fans are employed, and even these will be abandoned as soon as proper connections can be made.

Along either edge of the basin the coal measures attain their steepest slope, as is shown in cross-sections, Figs. 4, 5, 6 and 7. At the bottom of the basin the measures are practically horizontal. In the western end of the property also, as is well shown in Fig. 7, the measures lie practically flat.

Some highly interesting problems are encountered in mining, as may be seen from sections, Figs. 4, 5 and 6. Taking Fig. 4, which is a cross-section of the measures through the main tunnel, it will be noted that a number of "wants" or absences of coal occur. All of these tend to complicate the mining methods. Fig. 5, which is a section 2,800 ft. west of the main tunnel, shows some peculiar twists in the coal beds, and in Fig. 6, showing a section taken 3,300 ft. from that tunnel, will be noted some extremely large pockets that have been formed by the bed being pinched out in one place and thickened in another. One more than usually remarkable feature is the cross chute of coal which extends from the Little Buck Mountain bed to the Big Buck Mountain.

In this latter cross-section also will be seen the rock holes driven up from the lower measure to the higher ones. The main gangway here happens to be in the Buck Mountain bed instead of the Little Buck Mountain. At this point also is found one of the few places where the bottom of the measure is below the level of the water tunnel. A pump is used to drain the lower headings. They are worked by means of a short slope.

In driving the headings in the Little Buck Mountain bed to the east of the main drainage tunnel a want is encountered, so that at this point there are no workings along the southern end of the bed. Along the northern side the coal is free of partings and all of it lying above the heading has been taken out as far as a point almost opposite the end of the main strippings.

Between the south and north headings in the Buck

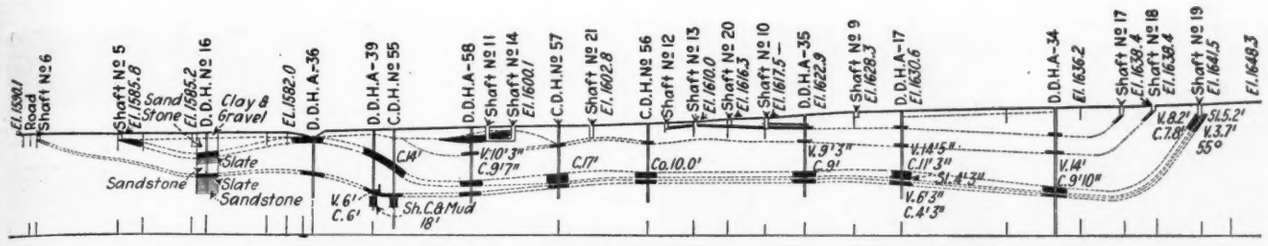


FIG. 7. AT THE WESTERN END OF THE PROPERTY, WHERE THE DIPS ARE GENTLE

This illustration will give an idea of the care with which the property is drilled and tested by small shafts. D.D.H. in the drawing is the legend for "diamond-drill hole"; C.D.H., for "churn-drill hole." V represents the whole seam thickness and C the net thickness of the coal.

Mountain bed lies a large body of coal that is below the level of these headings. In order to reach this the company is now driving a rock tunnel from a point on the Main Water Tunnel. It will reach the bottom of the measure at about the No. 6 tunnel which is shown in Fig. 1. The present headings cannot drain this because the levels in the Buck Mountain and Little Buck Mountain beds are not driven along the bottom of the measures, but are really counter-levels.

At present, therefore, all the coal that is obtained from this level has to be lowered down a gravity plane to the Main Water Tunnel. This new rock tunnel is being driven in what is known as the Lykens bed of coal, which in this area is not workable, being only 2 ft. thick and extremely dirty. It is much easier, however, to drive the headings through this measure than it would be through solid rock. At the present time this heading has been driven about 1,200 ft., but it will be extended to 4,200 ft. before it is finished.

Three Scrapers in Rooms, One in Gangway

Three methods of mining, each peculiar to the locality in which it is employed, are followed in this operation. An almost level block of 4-ft. coal lay tributary to No. 7 rock hole. The first idea was to mine this by longwall with a face about 185 ft. in length. The coal was to be undermined, brought down and then removed by means of scrapers, which would drag it to the rock hole. Unfortunately, it was discovered that the roof would not stand such a method of working. For this reason the plan was abandoned and another method adopted.

A gangway was driven along the lower end of the block, in which was installed a scraper line to drag the coal to the rock hole. At right angles to this gangway three rooms were driven, and a drag scraper was installed in each. This made a total of four scraper lines. Those in the rooms drag the coal from the face to the heading. Here in turn it is picked up by the heading dragline and brought to the rock chute.

Flush Coal Out of Rooms by Use of Water

This system is not recommended as being the most economical that could be devised, but it seemed to be the one best suited to the conditions existing and to the thickness of the coal. Had there been more coal in this section it is probable that some other method would have been used, but under existing circumstances the present system gives good results.

In parts of the mine the beds are too flat to permit the coal to run on sheet iron, yet too steep to allow the handling of mine cars. Accordingly, a pump has been installed and the coal is washed down the sheet-iron chutes by means of water, the water being pumped from the gangway ditch. This method is much more economical than the installation of buggy roads or conveyors of any kind.

In another portion of the mine the coal bed lies at an angle of about 14 deg. This is a difficult angle, as it is too flat to permit the use of sheet-iron chutes and too steep for mine cars to be used economically. In order to handle the coal from this locality a plane was driven up the steep portion of the pitch, as shown in Fig. 8. Every 60 ft. a room was turned off, these rooms being driven staggered on opposite sides of the heading.

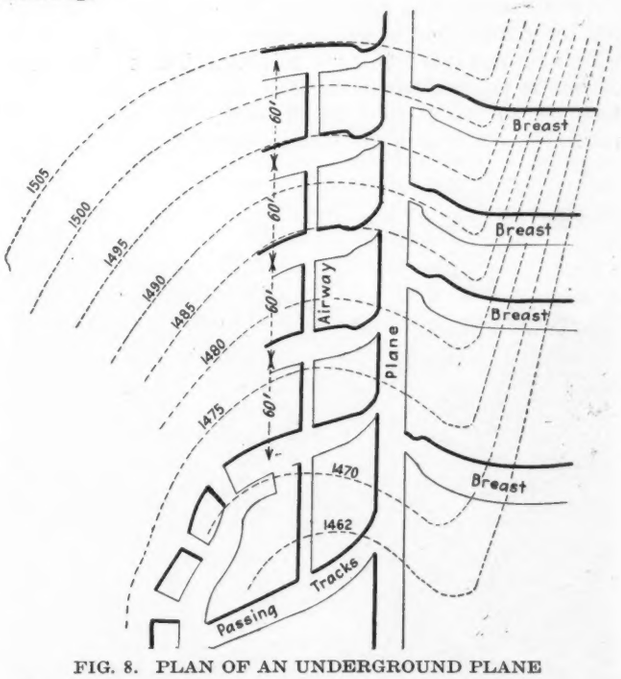


FIG. 8. PLAN OF AN UNDERGROUND PLANE

Too steep for a locomotive to haul cars up or lower cars down it, it is not so steep that locomotives cannot pass along it unloaded, making gathering trips from room to room. The locomotive does not bring cars beyond the room neck. The cars are handled from that point by the plane machinery. Note that the rooms open uphill.

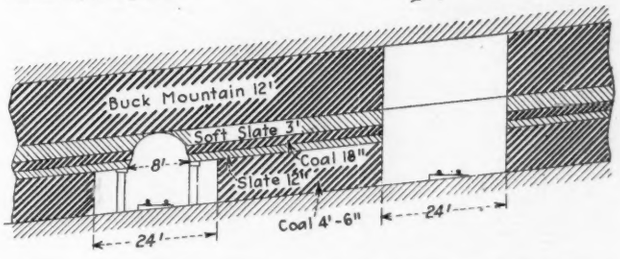


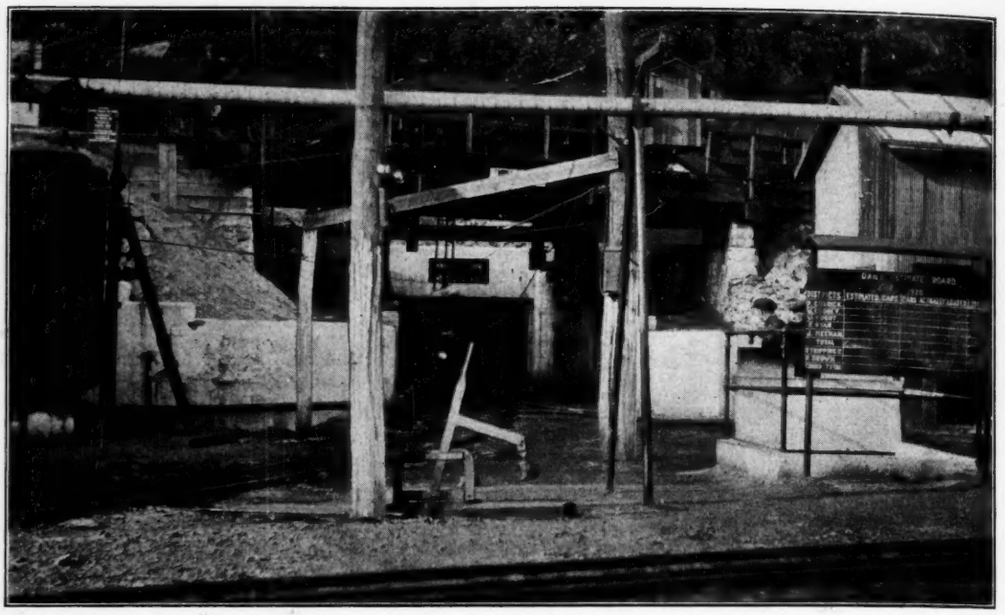
FIG. 9. CROSS-SECTION OF TWO ADJACENT ROOMS

The room on the left is being driven up in the bottom bed of coal. In the center the roof is broken and arched to the bottom of the thick upper bed. When the room is finished the upper and middle seams are taken out for the full width, as shown on the right. The slate however, is gobbed, but this the draftsman has failed to show. The pillar is then split by a room like that on the left, and on the return the balance of the coal right and left is taken, leaving the roof free of any support and ready to cave.

FIG. 10

Entrance to Main Drainage Tunnel

To the right of the tunnel is the daily estimate board, or, shall I say, the "prediction board," on which the foremen post the expectations for tomorrow, which expectations they make it a point to reach and excel. Above the mine portal is the road by which the empties go to the foot of the plane.



This spacing was adopted to the end that in removing the pillars they might be first split with breasts as wide as those used in first mining. The rooms were driven on the contour of the coal, and the longest, when finished, will be about 1,200 ft. long. The grade of the plane is such that a locomotive without loads can traverse it without difficulty in either direction. When the machinery of the plane leaves a car on the track in a room neck, this locomotive is able to place it at the working face. It can, of course, bring back a loaded car as far as the room neck, but it must leave it there, as it cannot handle it on the plane. The machinery of the plane pulls it out onto the slope and lowers it to the foot of the incline.

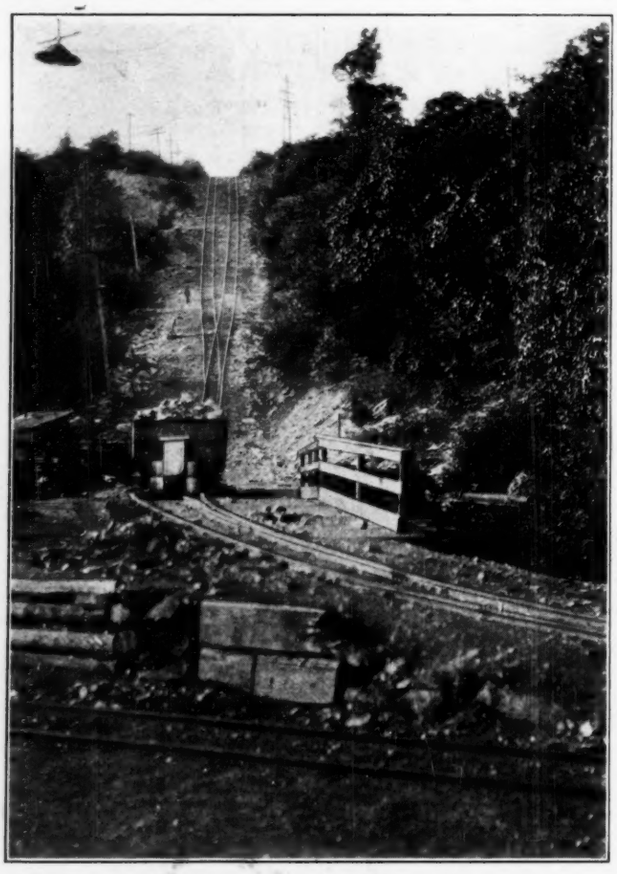


FIG. 11. BARNEY WITH TELESCOPING WHEELS

Usually the barney has either the gage that is standard for the plane and travels on the car rails or a gage narrower than the cars and travels on its own little road laid between the car tracks. Here the barney is so arranged that when it is on the plane proper it travels on the regular rails, but as it nears the pits the wheels are brought closer together and it travels on a narrow track which leads it down into the barney pit, where the cars travel over the top of it.

The Buck Mountain and Little Buck Mountain beds are mined simultaneously. The method employed is shown in the cross-section, Fig. 9. The Little Buck Mountain bed at this point consists of 4 ft. 6 in. of coal, on top of which is 12 in. of hard slate, surmounted by about 18 in. of coal. About 3 ft. of soft slate intervenes between the Little Buck Mountain and Big Buck Mountain beds. The rooms are 24 ft. wide, but in driving up only the bottom bench of the Little Buck Mountain coal is removed for the full width.

The dividing rock between the two beds is cut through for a width of about 8 ft. and the top arched. The rock taken down in this operation is gobbed under the dividing rock and acts as a support for the soft slate. By this method the rooms are driven until they reach their maximum length. On the return the Buck Mountain and upper bench of the Lower Buck Mountain seams are widened out to their full width of 24 ft. The Big Buck Mountain bed at this point is 12 ft. thick. On the return while widening the rooms the soft slate which separates the two measures is taken down and gobbed behind, so that the 18 in. of coal that otherwise would be lost is recovered.

In order to draw the pillars they are first split by driving breasts through them. These breasts are of the same character as those driven in first mining, but in this case, when returning, the full width of the pillar is taken instead of merely the coal in the breast. When rooms reach the foot of the steep pitch, they are driven up the pitch in the regular manner.

Fig. 10 is an illustration of the entrance of the Main Water Tunnel of this mine. All the coal produced underground is brought to the surface through this tunnel. One interesting detail of this operation is the "daily estimate board," shown in this illustration. Each day every section foreman makes an estimate of the amount

of coal that he expects to produce the following day. In case he does not attain the amount estimated he is required to give some extremely good reason for his failure. Opposite the amount estimated is shown the quantity of coal actually produced. In this way it is possible to predict with fair certainty the output for the following day.

Dynamo Is Driven by Descent of Cars

Immediately above the tunnel a bridge is shown with empty cars on their way to the foot of the plane which leads to the strippings. In the foreground is the loaded track from the same plane. This incline is operated mainly by gravity, but at one point it is necessary to use power in order to pull the empty mine cars, as the grade is so gentle that the loads will not drag the empties up the slope. This plane is so arranged that the surplus power generated by the loaded cars going down is used to drive a dynamo. Thus more power is actually generated than the handling of the empty cars consumes.

This plane is of the barney type, and the barney itself is of unusual construction. It is so designed that the wheels are of the same gage as that of the mine cars. In order that the barney may be able to enter its pit, the wheels are so arranged that they will telescope. This is accomplished by means of a latch and suitably arranged guard rails at the foot. When the barney approaches its pit, the wheels approach each other and are brought to a narrower gage than that of the car track. This narrow track then descends into the pit, allowing the barney to get out of the way of the cars, which then pass over it. As will be noted in Fig. 11, there is no narrow gage on the inclined track. That illustration shows the barney just about to enter the pit with its gage shortened to suit the narrower track.

FIG. 12. NEITHER SHOOTING GALLERY NOR SKATING RINK

The long building is a thaw shed for taking and keeping the frost out of loaded cars in wintry weather.

At the top of the incline a long double-tracked thaw shed has been built. This is used in winter to protect the contents of the mine cars from freezing. This shed has a capacity of forty cars. Only cars from the strippings are run through this building. None is allowed to stand outside over night. This thaw shed and the tracks are shown in Fig. 12. The shed is provided with a number of steam pipes that keep it at a temperature calculated to prevent freezing.

It is almost impossible to obtain a picture of the whole plant, but Fig. 13 shows the general outside arrangement. In the foreground will be seen the breaker described in the issue of *Coal Age* of Jan. 27. In the rear of the trestle that leads to the breaker will be noted a second car shed. This keeps the mine cars coming from the mine from freezing in case they have to stand loaded over night. Immediately behind the

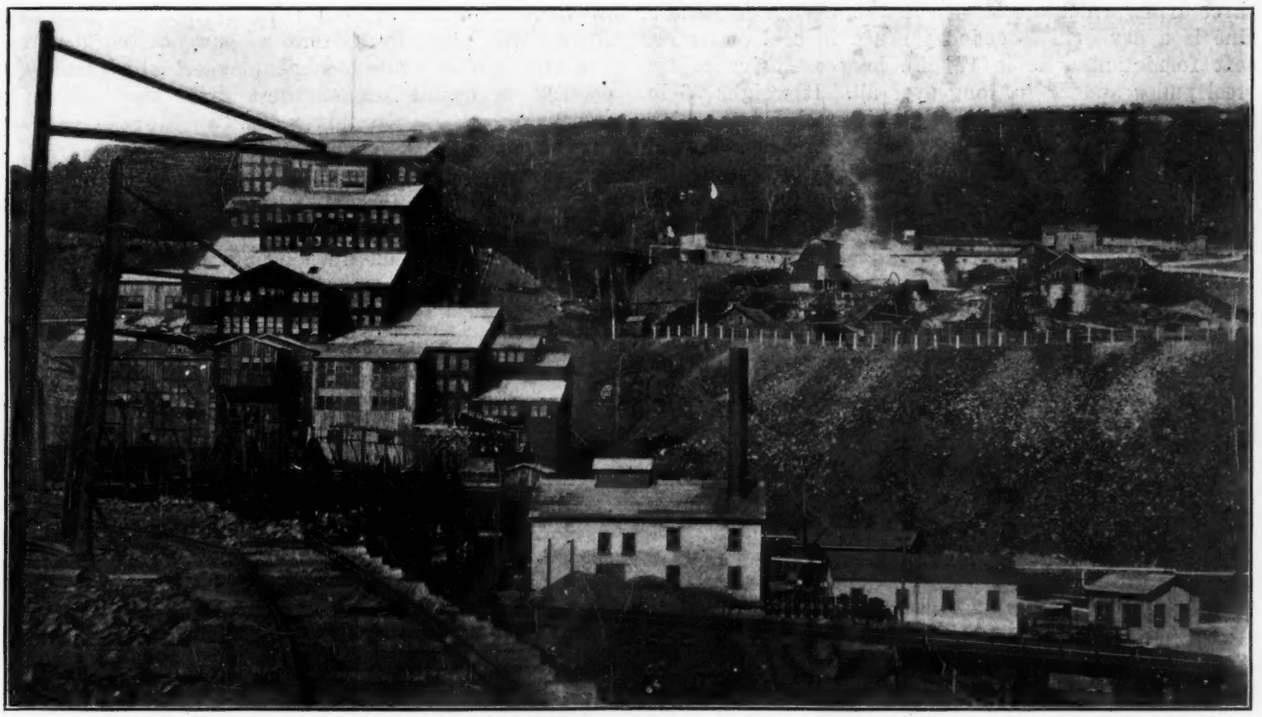


FIG. 13. GENERAL VIEW OF WESTON COLLIERY AND ITS LENGTHY THAW HOUSES

The loaded mine cars are not allowed to freeze during the long wintry nights to which the anthracite region is subject. In the morning the cars are ready for dumping and the breaker can start work without annoyance. In most mines it is customary to work the preparation plant—breaker or tipple—till all the coal from the mine has been loaded into the railroad cars. But though this is the rule cars are always apt to be left in the portal or at the shaft foot, and if this is an intake the coal is frozen solid. The thaw house corrects this. The buildings in the foreground were built by the Lehigh Valley Coal Co.

exit from this shed will be seen the top of a hoist that raises the cars to a sufficient level to permit them to move to the mouth of the tunnel by gravity.

About midway the length of the thaw shed will be seen the top of another car haul that raises the empties from the tunnel level to a point such that they may proceed by gravity to the foot of the incline, thence to be sent back to the strippings.

The foreman is given a bonus when tonnage averages a certain amount each month. The size of the bonus depends on the tonnage produced in excess of a minimum, thus the greater the tonnage, the larger the bonus. This of itself tends to bring the output to the highest possible point, but it would not be likely to decrease the cost of mining except in so far as increased tonnage means decreased overhead per ton produced.

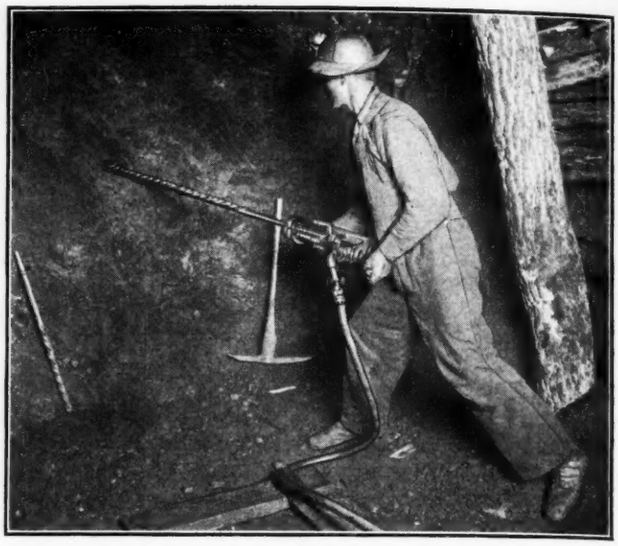
A second incentive, however, has the effect of decreasing the cost of mining. Every man in the company's employ each year is allowed to subscribe to a certain amount of stock, and a large number of the men, particularly the bosses, take advantage of this opportunity. Consequently any decrease in the cost of mining tends to increase the size of every man's stock dividend.

This Air Drill Is Easily Portable and Can Be Operated by One Man

AIR drills are no longer the expensive and heavy mechanisms of earlier days, to be used only where there is a lot of extremely heavy work to be done. They are now made to suit every kind of work, light or heavy, and are turned out in such numbers and so comparatively light in weight that they are not purchased only for exceptional work but for the daily round of drilling, wherever it has to be done.

The Denver Rock Drill Manufacturing Co. makes three drills, which are known as the Waugh "nineties." One is a dry drill intended for use in coal and other soft formations. It is 17½ in. long exclusive of the steel puller and 20 in. long over all. It weighs 35 lb. Another drill is a combination wet-and-dry machine, intended for rock drilling either above or below ground. This drill is 18¾ in. long exclusive of the steel puller and 21¼ in. long over all. Its weight is 39 lb.

A third drill is similar to the latter except that it is intended for dry drilling only. It is, therefore, particularly adapted to work above ground. This machine is 17½ in. long exclusive of the steel puller, 20 in. long over all and weighs 35 lb. All these drills are equipped for using ⅞-in. or 1-in. hexagon drill steel with collared shank 3¼ in. long. Air hose of ¾ in. inside diameter is preferable with these drills.



DRILL IS EASILY HANDLED, BEING A LIGHT WEIGHT FOR ONE MAN

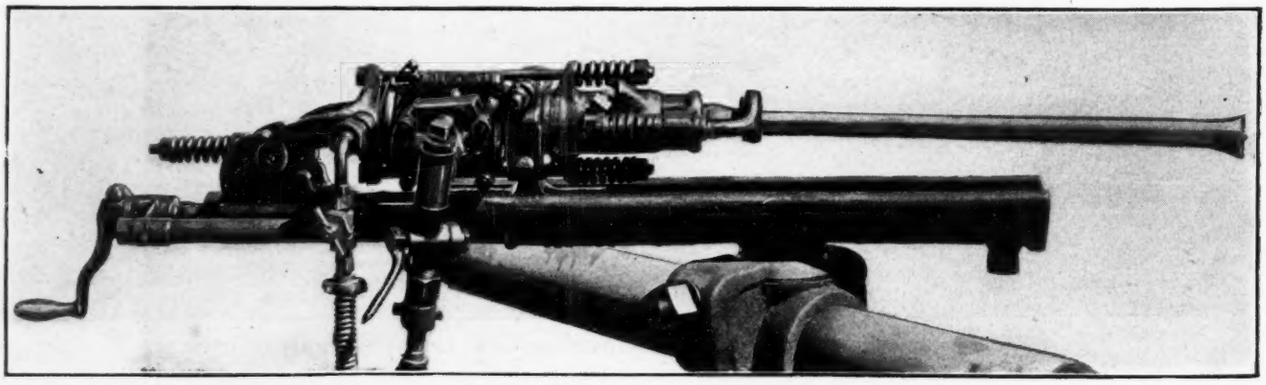
This machine weighs only 35 lb. and no great effort is needed to hold it to the face, whether the hole is high or low, near the rib or remote from it.

As will be observed from the above, all these machines are sufficiently light to be carried about and operated by one man. Instead of being built valveless, they are fitted with a new spool valve positively actuated by the air. Rotation of the drill bit is positive. Four pawls and an odd number of ratchet teeth upon the rifle-bar ratchet render backlash small. The stresses imposed upon these parts accordingly are light.

Lubrication is effected from an oil reservoir at the side of the cylinder. Pulsations of air when the drill is in operation gradually feed the oil into the main air supply, which distributes it to all parts of the machine.

A simple slide guide has been devised which makes it possible to mount any of these drills upon either a column or a bar. On this guide two hinged jaws act as a front support. These jaws are held together by a bolt provided with a spring, thus averting the possibility of distorting the drill cylinder. The rear support consists of one movable and two stationary jaws.

A helical spring on the movable jaw serves to take up the recoil of the machine, reducing the effect of that recoil to a minimum. This guide is built for the combination wet-and-dry drill but an adapter renders it suitable for either of the others.



WET DRILL FOR USE IN SANDY ROCK, WHICH WHEN DRILLED DRY FORMS A DUST INJURIOUS TO THE LUNGS

The bit on this drill is hollow and water which enters by the smaller hose is driven through the bit washing out the drillhole. This drill is mounted on a guide shell for tunnel driving.

Problems of Operating Men

Edited by James T. Beard

Cigarettes, Sparks and Firedamp

Though the Practical Test May Show That An Explosive Mixture Taken from the Mine Is Not Commonly Ignited by the Smouldering End of a Cigarette or a Lighted Pipe, the Conclusion Is That These Sources of Danger Must Be Kept Out of the Mine

AFTER reading the interesting letters on the subject of the ignition of gas by cigarettes and sparks, I cannot refrain from writing on this matter myself and giving my own conclusion which is that safety in mines requires that all such sources of ignition of firedamp should be kept away and never taken into the mine.

When a boy I have listened many times to old miners telling how shots were fired in gassy mines, in their days. The fireboss then acted as shotlighter and carried with him a thin piece of wire, which he stuck through the mesh of the gauze of his safety lamp. When the wire was red-hot he would pull it out and touch off the fuse without fear of igniting the gas. Few regarded a tobacco pipe as dangerous in gas.

However, while the same belief prevails among a large class of miners today, it is seldom that one is found willing to put his claim to a test in a body of gas in the mine. No level headed person with a knowledge of mine gases, would dream of undertaking such a foolhardy task, knowing well that it might cost him his life.

The Practical Test

Since this subject was brought up in *Coal Age*, it has caused considerable discussion hereabout and two or three of us young students decided to try the experiment on samples of gas taken from the mine. For that purpose we carried two soft-drink bottles filled with water into a place where much gas was being generated and only safety lamps were in use.

Emptying the bottles of the water allowed them to fill with the firedamp mixture in the place. The bottles were then sealed with fireclay and taken home. In trying out the experiment a towel was first wrapped around one of the bottles as a precaution. When this bottle was unsealed and a lighted match applied to its mouth, the contents exploded with a loud report.

The second bottle was then wrapped in the towel and unsealed. We had prepared a clay pipe having a stem about 20 in. long. While one of us drew vigorously on the stem, the bowl of the pipe with the glowing tobacco was applied to the mouth of the bottle with no other result than possibly a brighter glow of the burning weed.

Although this experiment was crude, it is interesting. Being simple, it can be tried by anyone; but it should be remembered that the fact the gas fails to ignite when a glowing cigarette or pipe is applied to it, furnishes no proof that smoking a pipe or cigarette in a mine is safe when gas is present.

Will Sparks Ignite Gas?

Mention has been made, in this connection, of the possible ignition of firedamp by sparks. Whether ignition will take place in this case depends wholly on the intensity and duration of the spark. It cannot be denied that sparks have been seen to fly when a pick struck a sulphur ball or hard rock, and no ignition of the gas resulted though the atmosphere was explosive and safety lamps were in use.

Although there seems to be a diversity of opinion on the question of the ignition of gas by sparks, it is my belief that terrible mine catastrophes have resulted from this cause. It will be remembered that a few years ago a disastrous mine explosion occurred in this vicinity, and a prominent mining engineer ascribed the ignition of the gas to a spark struck by the falling of hard rock on other rock of a similar nature.

In that case, however, when the mine was opened up and explored, evidence was found of a blownout shot, in a place that was known to have contained gas previous to the explosion. Unfortunately, those who would have been able to throw some light on the matter did not live to tell the tale.

Explosion Caused by Spark When Brushing Gas

Just now I recall an incident that happened sixteen or eighteen years ago in a Lancashire mine when one man was killed and another badly burned by an explosion of gas. A bratticeman who survived the accident, stated that he had accompanied the fireboss when that official was making his rounds the morning of the explosion.

Reaching a place where gas had accumulated they decided to brush it out. For that purpose, the man took off his jacket and started to whip the gas while the fireboss fanned it with a large shovel. In a moment, the shovel striking the roof rock caused a spark that set off the gas.

Going back, now, to the early days of mining when the increasing number of explosions of gas created the desire for a source of light that would not ignite gas, we find the "steel mill," as it was called, invented by James Spedding, in 1760. This device threw a shower of sparks that gave sufficient light to enable the miner to work but did not ignite the gas.

According to Sykes' Local Records of Northumberland and Durham mining, faith in the steel mill was badly shattered by the explosion that occurred in the Wallsend Colliery, June, 1785, which was attributed to the ignition of gas by the steel mill.

However, some doubt still remains in the minds of many miners that the use of the steel mill could ignite gas, notwithstanding the assertion of John Selkirk, who was grinding the mill at the time and witnessed the ignition of the gas by the sparks from the mill.

In all of these instances, however, regardless of whether or not the ignition of gas by sparks or by smoking is possible, it is certain one is toying with death when he takes the risk. As another has expressed it, he is "flirting with a tombstone."

Stephen Davies.

Midlandvale, Alta., Can.

ABSTRACTS FROM OTHER LETTERS

SMOKING cigarettes and pipes invloves the habit of carrying matches or other means of lighting on the person of the smoker and should, in my opinion, be prohibited by law in all coal-producing states, in respect to mines generating gas or where safety lamps are in use.

Having read the different letters in *Coal Age* bearing on this subject, I am not surprised to note that all the writers, without exception, agree that smoking in mines generating gas is a dangerous and indefensible practice and a menace to safety.

Though I do not know of any authentic case where the glow of a cigarette or a pipe has been claimed to have ignited gas and caused an explosion, I would hesitate to make such a test with a dangerous accumulation of gas in a mine.

Allowing that it is true that the glowing embers of tobacco will not ignite gas, it must be acknowledged

that the real menace to safety actually hinges on other facts that are always associated with smoking.

That it should be hard to eliminate the habit of smoking in the mine, which one writer says exists to a large extent among miners, is a surprise to me, but shows the need of drastic laws and regulations regarding the practice. The inability to eliminate the practice of smoking in a mine generating gas shows a lack of discipline.

I have worked in mines where smoking or carrying smokers' articles, such as pipes, tobacco and matches, was not permitted. The discipline was such that each man knew and felt that he would be severely dealt with if caught violating this rule. Indeed, the guilty person would be summarily discharged and could consider himself lucky if he was not arrested and prosecuted for his act.

Where the penalty is sufficiently severe and violators are promptly punished, the practice of secret smoking will not long survive among the workers in a mine.

Thomas, W. Va. "SAFETY FIRST."

READING the discussion on cigarette smoking in gassy mines, led me to do a little experimenting on my own hook. For that purpose, I used a tank sealed at both ends, except for leaving a small hole through which to insert a lighted pipe or cigarette.

Tests were made with gas-charged air taken from the mine where the Wolf safety lamp showed the mixture to be at or near the maximum explosive point. Acetylene gas was also used for the same purpose.

OTHER MINERS APPLY THE PRACTICAL TEST WITH LIKE RESULTS

Having filled the tank with the explosive mixture obtained in the mine, I first inserted into it a lighted pipe that had a bright red glow; but this failed to ignite the mixture. Repeating the experiment with a lighted cigarette, however, an explosion followed that blew out one end of the tank.

In the course of my experiments, I should state, it developed that all tobaccos are not alike, some have a higher burning temperature than others. At times, little white sparks would develop. One writer on this subject, *Coal Age*, Jan. 13, p. 70, has stated that much of the tobacco now on the market contains saltpeter. This may explain the little white sparks I observed in the burning of the cigarette that caused the explosion of the gas in the tank and also ignited the acetylene gas when this tobacco was smoked in a pipe.

There is no need to emphasize further the danger of smoking in a gaseous mine and Rule 32 of Art. 25 of the Bituminous Mine Law should be rigidly enforced. Any violation of that rule should be punished as the law provides.

As suggested by the editor commenting on this practice, in the issue of Dec. 23, p. 1289, I hope that the Bureau of Mines will undertake to make exhaustive experiments covering this matter and publish the results together with their recommendations. It appears to me as an idle suggestion that any discussion of this question is foolish. To my mind it has proved most instructive and a benefit to all engaged in the coal-mining industry.

———, Pa. "SAK."

MY INTEREST has been growing ever since this discussion was started. At first, I was inclined to think that the actual fact of whether or not a lighted pipe or cigarette could ignite gas had better not be enlarged upon.

In the same manner, I thought that the incident cited by a Scranton superintendent, *Coal Age*, Jan. 13, p. 70, had better not have been printed. However, lately I changed by mind and have come to the conclusion that if we have the foe to fight the better way is to get out in the open and tell him the truth. In other words, educate the miner who, whether in ignorance or otherwise, persists in the dangerous practice of smoking in a mine where safety lamps are in use.

SAFER TO INSTRUCT THE MINER REGARDING CONDITIONS

Many mine officials think that the less a miner knows about conditions, the better it is for all concerned. My opinion is, however, that our mines will be safer and the work more efficiently performed if we educate the miner to know all about the conditions that surround him in the mine, rather than keep him in ignorance and leave him to form his own conclusions, which are generally far from the truth and harmful.

For a number of years I have served as mine foreman and, in Illinois, as mine examiner (fireboss). The experience has made it difficult for me to understand how any practical mining man can regard the question of smoking in a gassy mine, in any other light than dangerous. Certainly none but a fool would care to run the risk of setting off gas in a mine when he is fully acquainted with the possibilities and their results.

Hillside, Ky. OSTEL BULLOCK.

Training Men for Safety

Preaching safety is one thing, but acting in accordance with safety rules and regulations is quite another thing. The first is recognized by all, but the honest practice of the second is greatly limited.

MY ATTENTION was particularly arrested by a heading contained in the letter of Richard Bowen, *Coal Age*, Dec. 9, p. 1192, which reads: "Train men to work safely."

This idea set forth by Mr. Bowen expresses my views precisely. The greatest problem in the coal-mining industry today is, to train men to act safely. In the majority of cases it seems hard to impress on the minds, even of operators and mine officials, the need of applying the most simple rules of safety to their own actions in the mine.

Mechanical devices, as Mr. Bowen has pointed out, will accomplish little if the men who operate them fail to practice safety themselves. Unless men can be taught the meaning of safety and the importance of its daily and hourly practice, safety devices will be useless.

In support of my reference to the fact that mine officials often fail to observe the safety rules and regulations that they make and exact of their men, allow me to refer to a local explosion that occurred in a mine operated by one of our large coal companies, and which caused the sacrifice of four lives through the reckless disregard of ordinary safety rules by two of the officials of the company.

FAILURE OF TWO MINE OFFICIALS TO PRACTICE SAFETY

The mine inspector employed by the company, together with the mine foreman and two trackmen, entered the mine about 8 o'clock one morning and proceeded toward a place that had been abandoned for some time. On the way, they met the fireboss, who cautioned the inspector against entering the abandoned place without a safety lamp.

Disregarding the fireboss's advice, however, and in violation of the rules, the four men proceeded on their way, the inspector saying by way of excuse that they could not see with safety lamps. It was not more than three hours after the meeting with the fireboss that a local explosion of gas occurred in the place where the four men had entered and where their bodies were found a little later by rescuers.

Reflecting on this incident, we cannot but believe that both the mine inspector and the foreman knew better than to go into the place with a naked light, especially after the warning given them by the fireboss. The two trackmen undoubtedly knew better also, but probably thought that the inspector and the foreman were as big as the fireboss and ought to understand what they were doing.

It may be of interest to state here, what is not generally known, that this inspector had failed to answer correctly some of the questions in the examination he took, but was enabled to secure his appointment to that position by reason of a "pull." The fact of the explosion reflects on the competency of the inspector, and the sequel would seem to support such an opinion. For this delinquency, however, the inspector paid with the sacrifice of his life.

PREACHING AND PRACTICE

Truly, it is one thing to preach safety, but how much more important is it to act safely. The incident, also, teaches a lesson for all examiners whose duty it is to pass on the competency and fitness of men to fill positions of responsibility for the lives of others.

Men who have worked hard to gain a practical knowledge and experience of mining must often give place to one who, like this inspector, has a "pull."

Not infrequently, we observe a mine foreman holding a first-class certificate when his practcial experience is extremely limited, perhaps far less than the men in his charge.

Not long since, a mine superintendent who had eleven years of practical experience in mines was refused his papers, because he had failed to give satisfaction on the safety-lamp test. Being one of my own personal acquaintances, I do not hesitate to say that those years of experience had taught him more in regard to the safety lamp and its use than the men whom he failed to satisfy on some technical point regarding the lamp, which probably had little bearing on its practical use.

My own impression is, that the question of mine safety is up to the older mine officials who so repeatedly perform their duties with a seeming contempt for having to conform to the restrictions they place on their men to insure their safety. There is but one way to impress this need of safe action in the mine, upon the men and that is through the example of every mine official.

WILBUR L. BENDER,
Pittsburgh, Pa. Carnegie "Tech."

Inquiries Of General Interest

Ohio Coal Seams and Strata

Giving a Portion of the General Geological Section of the Coal Formations in the Ohio Coal Fields, From the Upper Kittanning Seam Down to the Pottsville Conglomerate, Which Underlies These Formations

WE are anxious to obtain some reliable information regarding the coal measures that underlie the Middle Kittanning which is more familiarly known as No. 6 seam in this locality. Up to the present time we have been operating in the No. 6 seam, which is now nearing exhaustion on our properties.

I have been told that there are other workable seams of coal that underlie the No. 6 seam, but information on this point is very vague and unreliable. If it is true, as said by those who claim to know, that there is another seam of coal that will average 6 ft. in thickness, at no great depth below the seam in which we have been working, knowledge of that fact would mean much to us in the present emergency.

My information is that this lower seam has never been worked in this locality, although the fact of its existence has been known for a long time. The reason may be that the outcropping of the seam in the river has caused the fear that some trouble would be experienced in mining the coal, owing to the presence of much water. Definite information in relation to the coal measures that underlie No. 6 seam will be greatly appreciated. OPERATOR.

Coshocton, Ohio.

In reply to this inquiry, we reproduce, in the accompanying figure, that portion of the geological section of the coal measures extending from the Kittanning group of coal seams to the Pottsville conglomerate.

This columnar section and its description giving the thickness of the several strata is taken from the publications of the Geological Survey of Ohio and is the work of the state geologists, R. M. Haseltine and W. G. Burroughs.

This section is, of course, of only general application. The thickness of each strata is given as varying from a minimum to the maximum thickness found in different localities in the state.

SECTION OF OHIO COAL STRATA

It will be observed that some of the strata show a variation from zero to the maximum thickness, which indicates that they thin out and disappear in some localities.

In reference to the question of their being workable seams of coal underlying the Middle Kittanning or No. 6 seam, a study of the chart suggests the probability that a good thickness of coal can be found at a lower depth.

It is stated in the report that the Lower Kittanning or No. 5 seam can be traced from Mahoning County, southwest across Ohio, to Lawrence County. Coshocton from which this correspondent writes lies but a little to the north and west of the line joining the two counties just named and about midway between them.

This knowledge, of course, does not establish the fact that No. 5 seam has a workable thickness in Coshocton County. Proof of the existence and thickness of that seam at this point can only be obtained by prospecting the property by careful drilling, which is the only safe rule of guidance in any case and should always be done.

The geological report, however, goes on to state regarding the No. 5 coal seam, that the bed lies nearly flat and is notably persistent, being found in nearly every county within the coal fields of the state. The thickness of this coal, however, is generally said to be less than three feet, though in places a thickness of four and five feet has been found.

A promising feature in this connection, however, is expressed in the statement made in the report that the No. 5 bed reaches a good development in Columbiana and in Tuscarawas County where it reaches its greatest thickness. The latter county adjoins Coshocton County on the north and east.

In commenting on the development of No. 5 seam the report says that this has been somewhat retarded by reason of the more valuable Clarion and Quakertown or No. 2 seam. This statement, however, is probably of little practical importance, except in the extreme southwestern portion of the Ohio coal field, where the two seams, now nearly exhausted, reached their maximum thickness.

The report gives the following general proximate analysis of the No. 5 coal: Moisture, 5 per cent; volatile matter, 38 per cent; fixed carbon, 48.4 per cent; ash, 8.6 per cent. The ultimate analysis shows an average of 3.3 per cent of sulphur in the coal. The heating value of the coal is estimated at 12,800 B.t.u.

Working An Overlying Seam

The question of good roof support in the upper seam depends on the pillars in that seam being located vertically over those in the seam below, unless the interviewing rock is sufficiently thick and strong to distribute the pressure.

AT OUR Beard's Fork plant we are working two splits, No. 2 Kanawha seam, separated by 40 ft. of hard slate and shale, with some so-called "bastard sandstorm," though it is nothing more than a hard sandy shale.

There has been some little discussion as to how the entries in the top split should be located in reference to those

in the split 40 ft. below. While the superintendent claims that the entries and rooms above should be vertically over the pillars in the lower workings, it is my belief that this is wrong.

It has always been my understanding that the pillars in both seams should be in the same vertical plane, in order to have a solid pillar or line of support from the floor of the lower split to the roof of the upper one.

The coal is weak; the thickness in the lower seam averaging about 4½ ft. and that in the upper seam a little less, say 4 ft. Each seam is overlaid with a weak roof shale.

We would much appreciate learning the opinions of *Coal Age* and its readers in respect to this question. If the upper workings are laid out so that the center lines coincide with those below the lines of support are continuous; otherwise they are staggered and broken.

J. C. R. TAYLOR,
General Manager,
Page, W. Va. Loup Creek Colliery Co.

In the working of two seams that are separated by a few feet of rock strata, as in this case, there is only one safe rule to adopt. There must be provided continuous lines of support extending unbroken through both seams.

This means that the center lines of all pillars and openings must lie in the same vertical planes. In this respect the arrangement of pillars in a mine is similar to that of the main walls and pillars in a house.

The weight of the overburden, in mining, acts vertically downward and must be transmitted without break to a solid foundation, which is only found in the floor of the lower seam.

Examination Questions Answered

Examination for Mine Foremen, Sixteenth Anthracite District

(*Selected Questions*)

QUESTION—*What will be the length of a tunnel between two veins dipping* 38 *deg. if the dividing rock is* 100 *ft. thick, square with the dip?*

ANSWER—The thickness of the dividing rock (100 ft.) is represented by a normal line drawn perpendicular to the strata, while a horizontal line may be taken as representing the tunnel, which is practically level. These two lines form with the line of the strata a right triangle in which the perpendicular is 100 ft. and the hypotenuse the required length of the tunnel. The angle of dip (38 deg.) being the angle between the strata and the hypotenuse or line of the tunnel, the length of the latter is $100 \div \sin 38° = 100 \div 0.61566 = 162.43$ ft.

QUESTION—*How much stress would there be in a hoisting rope, on a slope having a 24-deg. dip, if the car and load together weigh 8,000 lb.?*

ANSWER—The stress in the hoisting rope on a steep slope is equal to the sum of the grade and track resistances. The grade resistance is found by multiplying the weight of the loaded car by the sine of the grade or slope angle. The sine of 24 deg. is 0.40674, and $8{,}000 \times 0.40674 = 3{,}254$ lb., which is the resistance due to the grade of the slope.

The track resistance may vary from 10 to 30 or 40 lb. per ton of normal pressure on the plane, according to the style of bearings on the cars and condition of the track. The normal pressure due to a load of 4 tons is $4 \times \cos 24° = 4 \times 0.91355 = 3.65+$ tons. Assuming 20 lb. per ton, the track resistance is $20 \times 3.65 = 73$ lb. and the tension on the rope is, therefore, $3{,}254 + 73 = 3{,}327$ lb.

QUESTION—*How would you build a mine track to insure the best transportation? Name all the points entering into the question.*

ANSWER—As far as practicable the grade of a main haulage road should be altered to make it more nearly uniform. A profile should be carefully made to ascertain where it is possible to make improvements that will pay by increasing the safety and reducing the expense of haulage. Having done this and having cut down the hills and filled the swags wherever this seemed advisable, the roadbed should be prepared with broken rock or cinders. Good track ties of suitable size are laid on this bed and spaced at equal distances apart depending on the kind of haulage to be employed and the weight of rails and loaded cars used.

The track should be well lined and the rails firmly spiked to the ties and joined with splice bars securely bolted. A good drainage ditch must be made at the side of the road to prevent any accumulation of water on the track. Care must be taken to avoid sharp curves and maintain a uniform track gage. If conditions are such as to permit the laying off of a main haulage road on such a grade that the tractive effort will be the same when hauling either loads or empties, this should be carefully investigated. There should be not less than two feet of clearance on at least one side of the road, which is particularly important in mechanical haulage.

QUESTION—*Under ordinary conditions what size props would you use in veins of the following thickness: 6 ft., 8 ft. and 12 ft., respectively? State how you would secure the props at top and bottom and how you would stand them relative to the pitch of the vein.*

ANSWER—A good rule in mine timbering is to make the diameter of the small end of the post, in inches, equal to its length in feet, which would make the required diameter of these timbers, at the small end, 6 in., 8 in. and 12 in., respectively.

In a seam practically level if the bottom is soft the post should be stood on a footboard. Where both top and bottom are hard a good plan is to stand the post on a little mound of dirt, in order to prevent the burring of the top of the post when it takes the weight. A good cap-piece should be inserted over the post to distribute the pressure on the roof slate and bind the top of the post together. This cap-piece should be of soft wood. Where the seam is more or less inclined a foothold should be cut in the floor of the seam to keep the post from slipping down the pitch. The upper end of the post should be inclined at a slight angle up the pitch from the normal. In mining language, the post should be "underset" an amount varying from a fraction of an inch to one-and-one-half inches for each foot of length of the post, depending on the angle of pitch. For example, a 6-ft. post on a 30-deg. pitch should be underset 5 or 6 in. The purpose of this is to overcome the effect of the tendency of the roof to slide down the pitch, which would cause a post set normal in the seam to fall out at the first slip of the roof.

QUESTION—*What is a blownout shot and what are some of its causes? Why should such shots be avoided?*

ANSWER—A blownout shot is one that has blown its tamping, instead of breaking down the coal. This may be due to any one of several causes, which are the following: The line of least resistance lying in the direction of the hole; an overcharging of the hole so as to permit of insufficient tamping; or the charge may be right but the hole not tamped to its mouth. A so-called "windy shot" is often mistaken for a blownout shot. It is distinguished from the latter, however, by the shattering of the coal or crevicing the seam, without suitably breaking down or dislodging the coal from its place in the seam. In that case, the force of the powder is largely expended on the mine air. Such a shot is produced by an overcharge of powder or may result when the charge is not properly located in the coal or a soft stratum in the seam affords an opportunity for the shot to "seam out." A windy shot is also at times the result of using combustible tamping such as coal dust.

Blownout or windy shots should be avoided because of their liability to produce a local gas or dust explosion that may or may not be extended throughout the mine with serious or fatal consequence. They should also be avoided because proper results are not obtained in the use of the powder and the coal produced is not only less in quantity but of poorer quality and much fine coal and dust is produced.

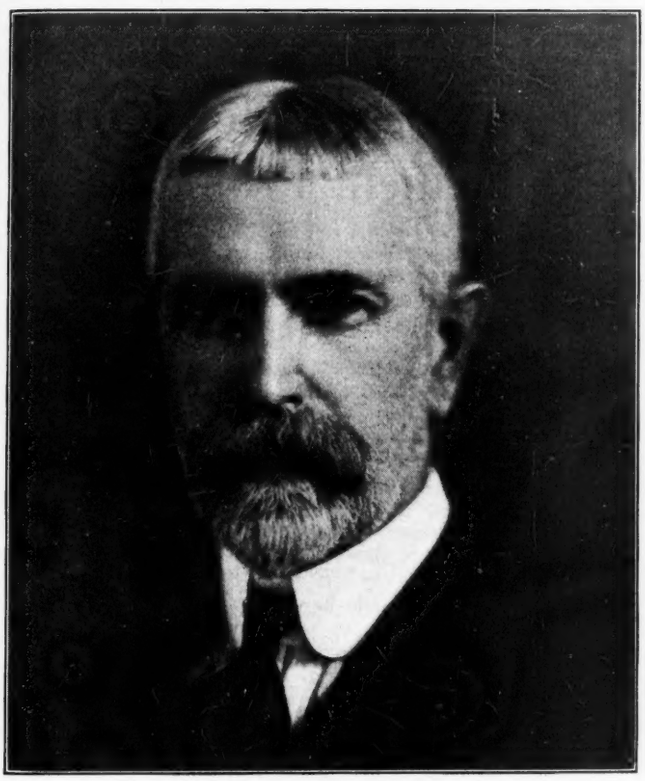
Mining Engineers Hold Annual New York Session—II*

Harrington Condemns Using Air from One Set of Workings to Ventilate Another —Lanza Declares Respirators Useless and Dangerous—Arguments Advanced in Favor of Employment Departments—Technical Session Followed by Sightseeing

D. HARRINGTON in "Dust Ventilation Studies in Metal Mines" gave some interesting observations about coal mines. He said "The general metal-mine practice and frequent coal-mine practice is to ventilate one mine through another. While this is cheap and convenient, it is inefficient and dangerous, as the mine receiving air from another usually has hot, humid, vitiated air, frequently impregnated with gases, dangerous dust and fumes from explosives. Owing to a reversal of air currents fumes from the fire in an adjoining mine have caused many deaths in metal mines, as well as in coal mines, and these have occurred even when under ordinary ventilation conditions the mine with the fire had been on the return air.

"All doors under ground should be held shut by a latch, a system of weights and pulleys, etc. At the time of a fire a door held shut only by the air pressure is dangerous, as air currents are likely to be reversed, either naturally or mechanically."

Dr. Lanza declared that it was useless to wear respirators as a preventive against silicosis. Only grains of 10 microms and less get in the lungs, and no respirator will exclude these. If it would, it would prevent breathing almost entirely. The men not only *would* not wear them but *could* not. Larger particles than 10 microms are arrested by natural methods before the lungs are reached. Respirators are positively dangerous if they give men confidence to work in the presence of siliceous dust, as they afford them absolutely no protection.



EDWIN LUDLOW

Newly-elected president of the American Institute of Mining and Metallurgical Engineers. Born at Oakdale, Long Island, N. Y., 1858; graduated at Columbia; civilian engineer U. S. Engineering Corps under General William Ludlow, his brother; in 1881, reconnaissance engineer of Mexican National R. R.; later an engineer for Mineral Railroad and Mining Co., at Shamokin, Pa.; superintendent Union Coal Co., for which company he installed first water-tube boilers and chain cutters used in the anthracite region; in 1889, manager in coal fields of Choctaw Coal & Railway Co., Oklahoma; later general manager Mexican Coal & Coke Co. in Sabinas field, for which he built a modern battery of Koppers ovens; in 1911 vice-president and general manager, New River Collieries Co.; from 1912 to 1919 occupied same position for Lehigh Coal & Navigation Co. In 1919 he entered consulting engineering practice.

*For prior account of meeting see pages 405, 406 and 407 of the issue of March 3.

Parke Channing read a paper by J. N. Hauser, general manager of the Tennessee Copper Co., on the employment bureau, which in that company is known as the service department. This force acts as a clearing house of information for the men. If a man is discharged and denies the charges made against him the service department investigates the matter.

The argument that followed seemed to favor the hiring and discharging of men by the foreman without any power of revision on the part of the employment bureau. That department, however, it was thought, should present men to the foreman for his approval but should not induce or compel him to accept them, for he had to make good with the men under his care. His right of discharge also was unquestioned, but often the service department was able to act as an intermediary whereby some slight misunderstanding between two men of different temperaments might be rectified. Besides there was always an opportunity to place such men where the temperaments of the boss and the employee would not clash. Usually such shifts resulted in satisfaction being obtained by both the company and the man thus shifted.

Best Foremen Have Mine and College Training

Parke Channing declared that in his belief as good foremen could be obtained from men of college education as from men who had learned their trade in the field. Both were often good and often bad. The best man usually was a college man who had served some time in the ranks.

H. G. Davis declared that he always had been opposed to the removal or lessening of the right of the foreman to hire or discharge men and asked the chairman to call on W. G. Whildin, general manager of the Lehigh Coal & Navigation Co. Mr. Whildin said that for five years the L. C. & N. Co. had maintained an employment bureau. This department had been initiated because 63 to 64 per cent of the men left the employ of the company every year and had to be replaced. In addition 96 per cent changed their working places.

Now only 28 per cent of labor turnover per year is experienced. This is a reduction of 8 or 10 per cent from the figures in 1919. The head of the department was a former general superintendent. He was well liked by the men and had a good knowledge of the underground conditions and personnel. He spent from 8 a.m. till noon in the office and in the afternoon got in his automobile and visited the mines, inquiring as to the wants of the foremen. He covers the mines once a week. Many calls for men, however, were not received on trips to the mines but over the telephone.

The head of the employment bureau did not have anything to do with housing but attended solely to employment. Under the new arrangements the company is obtaining the kind of men it needs. It would not make a change in the method of hiring under any consideration. A few weeks ago three Spaniards were hired, and they induced seventy-six others to seek positions with the company. When they were put to work the mine workers went out on strike. The shutdown lasted about four weeks, at the end of which time the men returned to work without having the object for which they struck conceded to them. Apparently the mine workers felt that too much power had been lodged in one man's hands.

R. D. Hall said that in the bituminous mines, unlike the anthracite, it was customary to engage foremen from districts other than those in which they were at work. These

foremen usually did not know the men in the district and were likely to get the wrong kind of employees. An employment manager who was from the district could make a better selection. It was easier to get one man having that peculiar knowledge than to provide that every foreman would have that special equipment for his job.

John G. Smith, manager, Elkhorn division of the Consolidation Coal Co., said that, located as that company was far from other fields, it was necessary to import men. Consequently at his mines an employment bureau had been created. This department had been able to locate men just where they would prefer to live in relation to friends, church and schools.

Parke Channing briefly described the work of the Young Men's Christian Association in enabling college and university students to get in touch with workmen during their college years. By teaching foreigners English, civics and history and other studies it was possible for the student to get an understanding of the elements of "human engineering," as that form of knowledge had been well termed.

H. H. Stoek said that he had not found it possible to introduce social courses into the curriculum at the University of Illinois because of the many subjects which demanded attention. Even mathematics had to be somewhat slighted. However, he tried to inject a little regarding human engineering into every course of training, remarking to his pupils that much more than 50 per cent of the cost of operation arose from labor and that nevertheless they were being taught mainly about material and its handling. They must never overlook the fact that mining is more than 50 per cent a labor problem.

On the evening of Wednesday the institute members and guests attended a banquet at the Waldorf-Astoria at which W. L. Saunders acted as toastmaster, introducing Herbert C. Hoover, the retiring, and Edwin Ludlow, the incoming, president. Mr. Hoover spoke about the institute's deficit and its speedy correction by an appeal for contributions. He mentioned the value of the institute as a means of informing the public as to the position of the coal industry. Still no one can see that any solution has been found for what Mr. Hoover regards as its peculiar evils; if found, it has not been applied, or again, if applied, has been found wanting.

He referred also to the great work done by the institute in establishing the Federated American Engineering Societies and called attention to the fact that the institute has now over 10,000 members. Edwin Ludlow's inauguration address related largely to the open shop, which he regarded as a necessary condition for national prosperity and development. There were no other speakers. The banquet was followed by a dance.

The next day was spent in sightseeing. Visits were paid to the Museum of the American Indian, Heye Foundation (private view), the Hispanic Society's Museum, the Museum of the American Numismatic Society, now housing Mrs. Sheridan's somewhat incongruous exhibit of busts of Bolsheviki and British statesmen; and the American Geographical Society of New York. These visits were made quite interesting by reason of the courteous attention given to the visitors by the presidents of the respective societies, who saw that the time was well utilized and that the leading points of interest were duly explained.

Lunch was served at the Mayflower and the visitors then journeyed to the buildings of the New York University, including the celebrated Hall of Fame. Later in the afternoon Mrs. Hoover tendered a tea to the visiting ladies at the Cosmopolitan Club.

G. E. Smith Advocates Long-Term Credits for Export Trade as Solution of Unemployment Problem

THE solution of American labor's greatest problem, unemployment, is the exporting of American time sheets to bring back American payrolls. The products of American workmanship under our present credit system can go only part of the way in reaching the foreign buyer. To reach the foreign buyer, to keep American goods flowing, American industries running, and to bring back work for the four million pairs of American idle hands, there must be provided at once adequate machinery for granting long-term credits in our export trade. Until these long-term credits are available American cargoes will be halted in mid-ocean, caravans loaded with American goods will be stopped in the middle of their journeys, and a great barrier will remain in place in all parts of the world, checking the flow of American time sheets for the solution of filling American payrolls.

These are the views expressed at the meeting Feb. 18 of the N. Y. Conference of Business Paper Editors by George Ed. Smith, president of the Royal Typewriter Co., a member of the Organization Committee of the Foreign Trade Financing Corporation, the largest of the corporations formed under the amendment to the Federal Reserve Act known as the Edge law, which permits the formation of banking institutions for financing the exports of American goods over such periods of time as will enable the rest of the world to do business with this country.

"For more than two years," says Mr. Smith, "the business men of the country watched and waited while the time approached for providing some means for preventing the complete disruption of our export trade. Since the armistice a $4,000,000,000 trade balance has piled up, and now a further balance finds difficulty in being financed. The National Chamber of Commerce, the National Foreign Trade Council and the National Association of Manufacturers all agreed long ago that something should be done to solve this great problem. The opportunity came when Congress passed the Edge Act and when a committee of the American Bankers Association formed the plans for the Foreign Trade Financing Corporation, which by its very size and its nationally representative character is expected to make real headway in remedying the chief obstacle now in the path of American exporters.

"Foreign buyers need American goods more than ever; American manufacturers, business men and farmers need more than ever to supply what the foreigner wants. They have the demand. We have the goods. By supplying that demand we could get rid of that great surplus, could keep busy six days a week instead of four, and could pave the way toward a new position for the United States in the international commerce of the world.

Limit Reached on Granting of Short-Term Credits

"Why can't this be done now?

"Because the commercial banks of the United States cannot go on extending long-term loans, and further because the American dollar is at such a high premium in foreign countries that foreign buyers cannot afford to do business with us on the short-term basis customary in this country. In granting short-term credits the limit has about been reached. It is only by giving the foreign buyer more time in which to pay for his goods that we can compete successfully with the rest of the world and sell our surplus products abroad.

"Now, what is the reason for this four billion dollar trade balance, and why is it threatening to put us out of business with the rest of the world?

"Foreign buyers since the armistice piled up this four billion dollar trade balance as a result of purchases which would ordinarily have been stretched out over a period of years. Normally they would have purchased what they needed, and the balance of trade kept practically level, although it was turning in our favor; but, instead of taking a sufficient amount of time so that demand would balance demand, or so that we would absorb direct securities from

the other side, as England and France did in the past, this balance piled up through immense one-sided purchasing on the part of foreign buyers in a short time.

"Such a thing would not have happened if this balance of trade had gradually grown in our favor instead of being dumped upon us. We would have had a gradual balance of trade to even up, and as it was gradual, we would have absorbed securities as the natural way to balance up that trade. It was not possible to educate the people of this country as to the advantage of absorbing foreign securities direct, for they had been a debtor people so long that they do not know what to do as a creditor.

Absorption of Securities to Rectify Exchange

"Therefore, there had to be a medium through which to absorb these securities, first investigating their worth, and then pooling them and issuing debentures based on them to the people. It has been felt that the big jump in the balance of trade, with its consequent disruption of exchange, would undoubtedly not have come if securities had been absorbed to correct it. Therefore let us consider a proposition which will absorb these securities in sufficient volume to have some effect on the balance of trade. This is the reason for the immense size of the corporation.

"Let us see whether we want securities or not. In the first place, if we do not get securities in payment for goods we have sent abroad, we are going to get other goods. Do we want a tremendous amount of imported goods dumped in on us? We want raw materials that we do not produce. We want many things, such as coffee, rubber, sugar, etc., cheaper, so that we will get more of the good things of the world that we do not produce for less of our individual effort. We want imports of certain goods, but we do not want four billion dollars worth of manufactured goods dumped into the country when we are now able to produce more of manufactured goods than we can consume.

"Wouldn't it be better to absorb good securities and have foreign people pay us interest. In the last analysis, we must import goods, gold or securities to settle our trade balance. We do not want the goods—we have taken all the gold foreign people can spare—and now we stand up against a wall because we cannot absorb securities. For the present we have taken more than enough from Europe that is movable. We do not want any more. We must become—as we would have become under normal conditions—a rich investing nation, as every rich exporting nation in the past has always become.

"The question then is whether this country will back up its export trade. It is not a question of whether the Foreign Trade Financing Corporation itself will succeed or will not succeed. The question is, whether we can get behind the proposition and by group thinking and concerted action solve one of the biggest problems that has ever confronted our country. Put another way, the question is whether we have to depend upon a crisis to show the country that it ought to have done what the brains of the country are now telling us we ought to know.

Create a Dollar Market to Sell U. S. Goods

"The problem is one which it will take an immense institution to handle. We will say now that we want to solve one particular problem, and I will put it before you concretely.

"There is in Australia today a market for American automobiles. We are not shipping them. Why? Because there is not a dollar market in Australia at this moment, and for that reason many of our men in Detroit are not working, and we are not producing the automobiles. We must create a dollar market in Australia in order to sell our goods there and keep our men working. How are we going to do it? By long-term credits. Is it right that we should have unemployed workmen in the country when we can by right action revive our market abroad? This is not being done out of charity of our hearts to help people who cannot help themselves. It is not an effort to make the League of Nations work. It is to develop the market for American products outside the United States. Why not take our dollars—put them to work—go on paying our workmen and keep up the prosperity of the country?

"We manufacture a tremendous amount of goods in America beyond the amount that is needed for home consumption. Naturally we cannot sell them in America. We need outside markets to dispose of them. When we cannot do this, there is unemployment for the men who manufactured these goods. When all is said and done, when we export we export labor. Labor is the biggest part of all goods we export. Take the automobile. The manufacturer of this article does not make 10 per cent profit on his turnover. If he did, he would be many times a millionaire. No, he makes nearer 5 per cent. Fifteen per cent of his cost goes to buying raw materials. The remainder goes into labor. In the end, more than 75 per cent of his cost goes to the workman. What, therefore, we are trying to do is to take the time sheets out of the factories of America, export them, and bring back payrolls for our American workmen.

"When you finance foreign trade, you finance only the time of our American workmen a bit further to its ultimate consumer.

"Let us take the automobile again. Suppose that you grant three months' credit. Where will that three months take the automobile? Make it simple. Probably to the top of the Andes Mountains, or half way across the Pacific Ocean. In three months the automobile has not reached the ultimate consumer. You haven't got it far enough toward the payroll for your workmen's time sheets.

"Some time ago, we, as manufacturers, sat back and said to the parties in the other countries: 'Come to our factory and get the automobiles, and pay us cash.' The farmer said: 'Come and get my corn from the farm or the local elevator, and pay cash.' When our exports began to decline, our producers relented a bit, and financed their goods to the port of shipment, letting the buyer take and pay for them there. Now our exports have shrunken so far, and our available financial machinery has become clogged so much, that we cannot carry the goods any further along to the ultimate consumer. It is impossible for the foreign buyer to take goods on the terms made available by our commercial banks, and therefore we cannot sell the goods.

Must Expand Machinery of American Trade

"The explanation is very simple. We haven't the machinery to carry our work to its ultimate consumer. We used to say to the buyers 'you come and take our goods and use your own money to finance them.' Now that we can no longer do this, we must either stop selling or find some way to carry our goods further along to the people who use them and consume them.

"This is not the bankers' problem alone. It is the people's problem. It requires *group* thinking, *group* action.

"Look at the people of Great Britain. They eat, sleep, work and live in export trade. There are forty million people thinking of export trade. Look at what they have done in export trade. Then wouldn't we rather have forty million people solidly back of the proposition to finance our exports than a hundred million people uninterested and unconcerned? This same thing is true of France and Germany.

"I think that having a hundred million people, all wearing the same hats, the same clothes, the same ties, the same shoes, all eating the same things, is a tremendous advantage for any nation. It gives a standardized market for the products of the country. That gives us a great advantage in going out and selling these standardized goods in the world's markets. But this great body of one hundred million people is unorganized, and you know that an unorganized majority in many cases will not do what an organized minority could.

"The answer is this: We must educate the people. We must bring about group thinking, making the people realize that what we are doing is putting machinery in operation which will back their payroll. We must make them understand that it is their problem. If all of us sit aside and wait for somebody else to act, the task will never be done.

"I am thoroughly convinced that what we need in this country is to think together, work together, act together, in a real spirit, and then the financing of our foreign trade will go over and be one of the greatest propositions of the world."

National Coal Association Narrates Calder Raid; Inclusion in Record Opposed

OBJECTION by Senator La Follette prevented the embodiment in the record of the hearings of any comprehensive narration of the raid made on the offices of the National Coal Association by the agents of the Calder investigating committee. At the request of Senator Reed, however, the National Coal Association prepared an account of the affair, to be printed as an exhibit in the record of the committee's investigation. Some objection has been offered even to that procedure, and it still is questionable whether this statement will be printed as a part of the committee's proceedings.

The statement, which was proffered to the committee by the National Coal Association, states in part:

"The wholly illegal manner in which the files and records of the National Coal Association were seized by the investigators for the Calder committee has not heretofore been told, but before the chairman or any member of the Committee on Manufactures passes on the question of publication of the names of these companies it should be told, and we think in justice to ourselves it should appear in the public record of this committee. . . .

"It is to be noted that the information contained in the statistical reports sent in to the National Coal Association is of a character similar to the information furnished to the Treasury Department, and that the confidential character of such report to the Treasury Department is recognized by the acts of Congress which prohibit the disclosure, even to other departments of the government, of the names of the particular companies making such reports, except upon executive order of the President himself. It is further to be noted that the Federal Trade Commission Act and the practice of the commission thereunder regard and protect as confidential information secured concerning the business secrets of any company reporting to such commission. The request of the association's officers that those reports, in so far as the individual names of the companies making them and the detailed figures of the companies reporting, should be treated as confidential, is, therefore, in accord with the practice that has heretofore been recognized both by Congress and by the department of the government above mentioned.

"Nothing was kept back or attempted to be concealed by the officers of the association. The safe of the association was opened and its contents freely disclosed; the corporate records of the association from the time of its organization were submitted to the representatives of the committee; all of the financial records were gone over; the voluminous correspondence files were examined; the records of the statistical bureau were scrutinized; and, in short, a most searching examination of all the papers, documents and records of the association was made by representatives of the Senate committee, including in their number Franklin T. Miller, special assistant to the committee; W. T. Chantland, special counsel for the committee; D. L. Wing, formerly in the employ of the Federal Trade Commission; Mr. Durand, in the employ of the Federal Trade Commission, and one or two others.

"On Monday morning following the officers of the association, upon coming to the office, found that . . . a very large number of files were missing and could not be found. The extent to which the files of the association had been removed did not at first occur to any of the officers of the association, but by the close of business hours on Monday it became evident that a large number of documents, including hundreds of original letters addressed to the association and carbons of replies thereto, had been removed from the offices of the association during the preceding night in the absence of any representative whatsoever of the association and without any authority or permission having been granted by any representative thereof and in direct violation of the conditions made by Vice-President Morrow when he first consented to give the representatives of the committee access to the files.

"Subsequently, at the close of the hearing Wednesday afternoon, Dec. 22, some of the documents were returned to the association and others were returned at later date covering a period of weeks. As late as Feb. 4, 1921, a document which was found to be missing from the files of the association was finally located in the possession of the committee after the representatives of the committee had insisted that they did not have such document. The officers of the association, under the circumstances above stated, have been utterly unable to make any definite check of the documents removed and cannot now, and never will, be able to determine whether all of the documents that were removed have in fact been returned.

"That there was no shadow of legal authority for the removal of the files and papers of the association by the representatives of the committee is admitted even by the committee itself, and no defense or excuse for the action of such representatives has ever been advanced."

Milton H. Smith Dies; Was President of Louisville & Nashville R.R. 30 Years

MILTON HANNIBAL SMITH, president of the Louisville & Nashville Railroad Co., died at his home in Louisville, Ky., Feb. 22 after a heart attack. He had been ill for several months and his death was not unexpected. Mr. Smith was 84 years old and had been president of the Louisville & Nashville since 1891.

Mr. Smith was born in Greene County, N. Y., Sept. 12, 1836. His first position was as telegrapher with the Mississippi Central R.R. When the Civil War began he entered the military railroad service and was appointed master of transportation on all the military roads in the occupied districts of the South.

At the close of the war Mr. Smith entered the employ of the Louisville & Nashville R.R., at that time operating less than 300 miles of tracks, as freight agent at Louisville. His service with the Louisville & Nashville continued with but one interruption until his death. In the yellow fever epidemic of 1878 he retaliated on Montgomery's quarantine of trains by an embargo on all Montgomery traffic. On appeal from Montgomery his superiors revoked the embargo order and Mr. Smith resigned.

He then became general freight agent of the Baltimore & Ohio R.R., a place he held for three years. His next post was general agent for the Pennsylvania lines at New York, which he held until he went back to the Louisville & Nashville as chief operating officer, with the title of vice president Jan. 1, 1882.

Italy's Railways to Buy Coal Through New York Office

THE Italian Discount & Trust Co., of New York City, announces that all purchases of coal by the Italian Railway Administration will hereafter be made from its New York office, which is in charge of Comm. F. Quattrone. By the end of 1921 it is expected that the water-power plants of Italy will be furnishing about 1,800,000 hp., which, it is estimated, will supply as much mechanical energy as would be obtained from 5,500,000 tons of coal. Even with this application of water power, however, the kingdom would still be compelled to import 6,000,000 tons of coal every year to cover the industrial requirements of the country.

THE MERCHANTS' ASSOCIATION OF NEW YORK has appointed a special Coal Shortage Committee to study the legislation proposed by Senator Calder's investigating committee. Its members are J. F. Bermingham, president, Delaware, Lackawanna & Western Coal Co.; Michael F. Burns, of Burns Brothers; Percy C. Madeira, of Madeira, Hill & Co.; F. W. Wilshire, vice-president Consolidation Coal Co.; Reeve Schley, former Fuel Administrator for New York; Frank deK. Huyler, president of Huylers; Walter Kiddie, W. H. Nichols, Jr., president of General Chemical Co.; James H. Post, president National Sugar Refining Co., and Burton F. White of the Hotel Bossert. Frank A. Horne, president of the Merchants' Refrigerating Co., is chairman of the committee.

The Weather Vane of Industry

News Notes Chronicling the Trend of Industrial Activities on Which Depends the Immediate and Future Market for Coal

READJUSTMENT during the last month, according to a bulletin of The Mechanics & Metals National Bank of the City of New York, has followed the course generally expected and predicted by the best-informed observers. "Those commodities which had not previously been affected by the general decline in prices, or which had actually moved contrary to the general tide," the bulletin continues, "are now beginning to decline. In the last few weeks have come price reductions in crude petroleum and gasoline, iron and steel, paper and coal. Reductions in wages of from 10 to 25 per cent continue to be announced from an ever-widening circle of industries.

"These price and wage reductions may be looked upon by many as unfavorable factors. Really, from the point of view of the country as a whole, they are quite the reverse. Business cannot start again upon a new level until prices and wages generally have reached that level. The longer the readjustment of the wages and prices that have been out of line is deferred, the longer the revival is deferred.

"The relation of the price of one article to the price of another is not determined by accident. When students of the situation assert that the price of coal is out of line with the price of cotton, they do not make this assertion simply because they have been accustomed to a different relation in the past. They mean that the ratios of the prices of coal and cotton, or of coffee and gasoline, or of all commodities together, must in the long run correspond with the ratios of their respective costs of production.

"Special conditions of demand and supply in each industry may for short periods make prices depart from these ratios; but for just as long as they do, production will be unbalanced, and readjustment must continue. In those industries in which profits are too low, production will diminish, throwing men out of work; in those in which profits are abnormally high, production will tend to increase; but it will be a long period, involving a great deal of suffering to individuals, before the men thrown out of work in one industry are reabsorbed in another. What applies between different industries applies between different stages of the same industry—between the respective profits earned by wholesalers and retailers, for example. It would be far better for the revival of industry if the present readjustment could be made by everyone simultaneously. Dragging it out can only put off the day of real revival."

Begin Work on New Ford Plant

Work is to be started at once on a $10,000,000 plant for the manufacture of tractors and other motor products for Henry Ford on Green Island, opposite Troy, N. Y. The State Land Board on March 2 approved of a grant of fifteen acres of land under water above and below the Federal dam at Troy, the Federal Power Commission at Washington having granted a license Feb. 28 to develop water power at the Troy dam for the project. The plans approved by the Federal Commission's engineers call for a hydro-electric power plant and equipment costing $250,000. The Fords have announced plans for an industrial and residential development at an estimated cost of $750,000 on 150 acres of land on Green Island purchased in August, 1918.

Form $3,000,000 Cotton Company

Articles of incorporation were filed Feb. 28 at Little Rock, Ark., by the Arkansas Cotton Mills Co., capitalized at $3,000,000 and organized, according to the papers, to erect and operate a chain of mills in that state. The mills will be the first in Arkansas to manufacture cotton into cloth.

N. Y. Central Shops Reopen

The New York Central locomotive repair shops at Elkhart, Ind., employing about 700 men, and those at Collinwood, employing more than 1,300, both of which were shut down two weeks ago, resumed operations March 1. On the same date the locomotive shops at West Albany reopened. The shops were closed down a week ago, throwing approximately 1,400 men out of employment. All of these men returned to work with the opening of the shops, it was stated. The locomotive shops at Avis, Pa., which were closed on Feb. 19, also resumed full operations on March 1.

Standard Oil Reduces Work

It was announced March 2 at the plant of the Standard Oil Co. at Bayonne, N. J., that on account of overproduction a cut would be made in the hours of labor of the 5,000 men employed. Men with less than five years' service with the company will work four days a week; those of between five and ten years' service will work five days a week and those with more than ten years' service will work the full week. It was said this cut probably would affect the company's plant at Bayway, near Elizabeth, and the Eagle plant at Jersey City.

Chevrolet Plant Resumes

The Chevrolet Motor Co. of Texas announced Feb. 27 that production would be resumed at its factory in Fort Worth March 1. The plant had been closed since Nov. 1.

Wages Cut, Carpet Workers Strike

Refusing to accept a wage cut of 20 per cent, announced Feb. 25, employees of the Bigelow Hartford Carpet Co. at Thompsonville, Conn., went on strike Feb. 28. The company's estimate of the number out is 800, while the strikers put it at 1,000.

Woolen Mill to Operate Full Time

The Worcester Woolen Mill Co. announced Feb. 27 that it would begin operating at full capacity as soon as its working force could be increased to its old size of 300 hands.

U. S. Steel Curtails Output

In the Chicago territory, ingot production of the United States Steel Corporation had fallen to 60 per cent of capacity and in the Pittsburgh district to 65 per cent of capacity, according to the *Iron Age* of March 3. This despite the fact that independents generally appeared to have booked sufficient orders to maintain their recent scale of operations. On March 1 the United States Steel Corporation had fifteen fewer blast furnaces in operation than on Feb. 1.

Foreign Markets and Export News

Belgian Coal Production in 1920

Belgian production of coal, coke and briquets during 1920 is shown in the following table:

Month	Coal, Tons	Coke, Tons	Briquets, Tons
January	1,889,640	112,030	229,180
February	1,683,750	110,140	237,800
March	2,006,160	121,670	267,020
April	1,900,750	131,960	250,580
May	1,737,080	147,120	218,270
June	1,887,235	153,040	239,163
July	1,911,490	165,430	258,220
August	1,856,070	169,500	256,450
September	1,909,050	164,620	257,760
October	1,966,580	173,840	256,830
November	1,633,990	170,460	184,020
December	2,051,740	181,470	267,070

The *Colliery Guardian* announces the creation by royal decree of a National Institute of Mines, at Frameries, with the object of studying all matters concerning the better utilization of Belgian mineral products, the improvement of mechanical appliances and methods of working in mines, as well as the amelioration of the conditions of labor in mines. The Frameries testing station is placed at the disposal of the institute, which will be required to submit reports to the Government and to carry out such researches as the latter may think fit.

Prices of Belgian coals remain at the old figure, although German coals have now been reduced by 15 fr. From Jan. 1 to Jan. 24 the Belgian Co-operative Society of Coke Makers received 67,483 tons of German coking coal, and the point has almost been reached when the deliveries are in excess of requirements.

GERMANY HAS REFUSED the application of the Westphalian Coal Syndicate for permission to increase the price of coal by 12 mk. per ton, and that of the coal owners of Lower Saxony for an advance of 18.40 mk. per ton, whilst granting increases of 3.70 mk. per ton on coal and 12.70 mk. on briquets in the Mid-German and East Elbe districts.

SCARCITY OF COAL, experienced in the central part of Chile since last May is over, temporarily at least. American coal has been freely offered since the middle of December, 1920, at prices lower than any made since the war began. Valparaiso is well supplied and the ability of the state railways, the chief consumer, to obtain native coal from the South because of better labor conditions has lightened the import demand. Antofagasta and Iquique, nitrate ports of the North, take about 30,000 tons, depending on the activity of the nitrate industry. As the latter is facing a period of dull demand, it is likely that coal imports will be small during the coming year.

Exports of Bituminous in January, 1921, Nearly a Million Tons Greater Than a Year Ago

Exports of bituminous coal from the United States in January, 1921, are reported by the Bureau of Foreign and Domestic Commerce as 2,248,448 gross tons, compared with 1,249,167 tons for the corresponding month of 1920. Shipments to France, Italy and Sweden represented considerable increases, while there was a decrease in the tonnage shipped to other European countries, as the Netherlands and Switzerland. Exports to Canada in January of this year were almost three times as great as in January, 1920. In Central America, Panama and Mexico, as well as the British West Indies received larger amounts this year than last, and Cuba considerably less. Excepting Chile, South American countries, particularly Argentina and Brazil, took less of our coal a year ago.

Exports of anthracite, which go mainly to Canada, decreased from 306,069 gross tons in January of last year to 209,340 tons for the same month of this year. Exports of coke declined from 58,026 to 37,745 gross tons. A summary of these figures is contained in the following table:

EXPORTS OF COAL AND COKE, JANUARY, 1920, AND JANUARY, 1921, IN GROSS TONS

	Jan., 1920	Jan., 1921
Coal and Coke:		
Anthracite	306,069	289 340
Bituminous	1,249,167	2,248,448
Exported to:		
France	50,337	143,440
Italy	128,502	185,907
Netherlands	112,846	76,538
Sweden	4,035	17,707
Switzerland	33,438	.....
Canada	458,994	1,177,519
Panama	34,067	51,402
Mexico	6,197	32,176
Br. West Indies	19,720	23,792
Cuba	99,620	55,003
Other West Indies	3,492	10,273
Argentina	145,455	107,135
Brazil	48,205	35,651
Chile	3,311	66,277
Uruguay	11,405	11,065
Other countries	89,543	254,505
Coke	58,026	37,745

European Freight Rates Soften; Little Change in Other Markets

European freight rates have declined a trifle, according to W. W. Battie & Co.'s weekly coal trade freight reports. South American rates stiffened slightly. West Indies rates will be governed by the sugar market homeward.

Freight rates by steamers were quoted as follows:

	Feb. 21, 1921	Feb. 28, 1921	Tons Discharged Daily
Malmo	About $6.00	About $6.00	1,000
Copenhagen	About 6.00	About 6.00	1,000
Stockholm	$6.50/ 6.75	$6.50/ 6.75	800
Gothenburg	About 6 00	About 6.00	1,000
Antwerp/Rotterdam	3.85/ 4.00	3.75/ 4.00	1,000
Hamburg	About 4.50	About 4.75	1,000
Fr. Atlantic ex. Rouen	About 4.25	About 4.35	700
Lisbon	About 5.00	About 5.00	700
Algiers	About 5.75	About 5.75	800
West Italy	About 5.50	5.50/ 5.75	1,000
Marseilles	About 5.50	5.50/ 5.75	1,000
Piraeus	About 6.50	About 6.50	1,000
Trieste/Venice	About 6.50	About 6.50	1,000
Port Said	About 6.00	About 6.00	1,000
Alexandria	About 6.00	About 6.00	1,000
Constantinople	About 6.75	About 6.75	500
Gibraltar	About 5.00	About 5.00	1,000
Teneriffe	About 5.50	About 5.50	500
Pernambuco	About 6.50	About 6.50	500
Bahia	About 6.50	About 6.50	500
Rio	About 6.00	About 6.00	750
Santos	6.50/ 7.00	6.50/ 7.00	450
Buenos Aires or LaPlata or Montevideo	6.00/ 6.25	6.00/ 6.25	500
Para	About 6.50	About 6.50	500
Rosario	6.50/ 7.00	6.50/ 7.00	750
Nitrate Range	About 5.25	About 5.25	500
Havana	About 2.50	About 2.50	500
Sagua or Cardenas	2.75/ 3.00	About 3.00	300
Cienfuegos	2.75/ 3.00	2.75/ 3.00	400
Caibarien	About 3.00	About 3.00	300
Guantanamo	2.75/ 3.00	2.75/ 3.00	500
Manzanillo	About 3.00	About 3.25	300
Bermuda p. c. and dis. free	About 3.25	About 3.25	300
Kingston	About 3.25	About 3.25	400
Barbados	About 3.25	About 3.25	500
St. Lucia	About 3.25	About 3.25	500
Santiago	About 3.25	About 3.25	500
Port of Spain	About 3.25	About 3.25	500
Curacao Free p. c. Curacao	3.00/ 3.25	3.00/ 3.25	500
St. Thomas	3.00/ 3.25	3.00/ 3.25	500
Vera Cruz or Tampico	3.25/ 3.50	3.25/ 3.50	500

N.B.—The above rates to South American ports are based on Welsh form. We would quote considerably less on July form.

All above rates gross form charter

Shipping Board Coal Bids of Feb. 28 in Some Instances Are $3 Less Than Those of December

THE U. S. Shipping Board is considering the following bids from coal companies, received Feb. 28, for supplying coal at Atlantic ports and the Virgin Islands in 1921. This is the third set of bids to be received, those offered in December, 1920, and Jan. 14, 1921 (with one exception), having been rejected as too high. The last bids are uniformly lower than those received in January, and in some instances almost $3 under those of December.

In order to gain some idea of the comparability of the three successive bids for these coals, at approximate intervals of a month and on a declining market, the average (without weighting in accordance with tonnage) of all bids for each of the four forms and for each port is shown in the following table:

NEW YORK

	Prices Bid 1	2	3	4
Dec. 10, 1920	$8.70	$9.98	$8.79	$9.33
Jan. 14, 1921	7.79	9.21	7.98	8.03
Feb. 28, 1921	6.86	8.42	7.02	7.27

PHILADELPHIA

Dec. 10, 1920	8.99	9.34	8.30	9.13
Jan. 14, 1921	7.45	8.59	7.45	7.69
Feb. 28, 1921	7.33	8.17	8.05	7.19

BALTIMORE

Dec. 10, 1920	$8.70	$9.98	$8.79	$9.33
Jan. 14, 1921	7.21	8.27	7.25	7.39
Feb. 28, 1921	6.90	7.82	6.83	7.06

HAMPTON ROADS

Dec. 10, 1920	$9.70	$10.45	$9.41	$8.95
Jan. 14, 1921	8.15	9.88	8.26	8.48
Feb. 28, 1921	7.37	....	7.18	....

BOSTON

Dec. 10, 1920	....	$15.00	....	....
Jan. 14, 1921	....	12.20	....	12.95
Feb. 28, 1921	....	11.15	....	....

CHARLESTON

Dec. 10, 1920	$9.55	$12.55	$8.92	$10.00
Jan. 14, 1921	8.17	9.31	7.92	8.32
Feb. 28, 1921	7.60	8.72	6.91	7.58

JACKSONVILLE

Dec. 10, 1920	$10.90	$11.86	$9.95	$11.20
Jan. 14, 1921	9.29	9.83	8.19	9.20
Feb. 28, 1921	8.58	9.49	7.62	9.04

SAVANNAH

Dec. 10, 1920	$9.95	$10.84	$8.93	$10.00
Jan. 14, 1921	8.23	8.92	7.91	8.22
Feb. 28, 1921	7.52	8.06	7.16	7.31

BIDS SUBMITTED FEB. 28

BALTIMORE

Company	Prices Bid 1	2	3	4
Imperial Coal Co.	$7.55	$8.35	$7.25	$7.60
Geo. D. Paris	....	....	5.97	....
H. P. Prydon & Bro.	....	....	7.09	....
Burtner Coal Co.	7.77	8.78	7.65	7.88
Ainsworth Coal & Iron Co.	6.68	7.71	7.48	6.71
D. Lewis Fuel Co.	....	....	7.00	7.00
Dexter & Carpenter	6.49	7.44	....	....
Quemahoming Coal Co.	6.64	7.41	6.60	7.00
Equitable Fuel Co.	....	....	6.82	....
W. C. Eakins	6.31	7.39	6.16	6.39
Hall Bros. Co.	....	8.07	6.97	7.27
Stearn Coal & Coke Co.	6.66	7.43	....	6.64
Belle & Harriman	7.10	....	6.95	....
Pennsylvania-Virginia Coal Co.	....	....	5.98	....
P. & S. Coal Co.	....	....	6.88	....

BOSTON

Maritime Coal Co.	....	$11.50	....	....
Stearn Coal & Coke Co.	....	10.80	....	....

CHARLESTON

American Export Co.	....	....	$6.90	....
Harriman Coal Co.	$7.35	$8.30	6.90	$7.50
Consumers Coal Co.	8.25	9.25	7.25	....
U. S. Fuel Corp.	....	....	7.62	....
L. O. Scott	....	....	6.05	....
Taggart Coal Co.	7.00	8.60	6.75	7.65
Stearn Coal & Coke Co.	7.79	....	....	....

JACKSONVILLE

Southern Coal Co.	$9.50	$10.25	$8.50	$9.80
American Export Co.	....	....	7.50	....
Harriman Coal Co.	7.85	8.75	7.25	7.90
U. S. Fuel Corp.	....	....	7.78	....
L. O. Scott	....	....	6.30	....
Logan Coal & Supply Co.	8.95	9.47	8.40	9.43
Belle & Harriman	8.03	....	7.63	....

HAMPTON ROADS

Company	Prices Bid 1	2	3	4
White Oak Coal Co.	....	....	$7.36	....
Crozier-Pocahontas Coal Co.	....	....	7.36	....
Wm. C. Atwater & Co.	....	....	7.35	....
Lake & Export Coal Co.	....	....	7.10	....
Pocahontas Fuel Co.	....	....	6.00	....
Fort Dearborn Coal Co.	....	....	7.85	....
Central Pocahontas Coal Co.	....	....	7.65	....
C. G. Blake, Inc.	....	....	7.28	....
Leckie Coal Co.	....	....	7.95	....
Dexter & Carpenter	$7.49	....	....	....
Chesapeake & Ohio Coal Co.	....	....	7.28	....
Smokeless Fuel Co.	....	....	7.30	....
Chesapeake & Potomac Coal Co.	....	....	6.85	....
Interstate Coal & Dock Co.	....	....	7.25	....
W. C. Eakins	....	....	6.69	....
Relsah Coal Corp.	....	....	7.15	....
Maryland Coal & Coke Co.	....	....	7.25	....
Hall Bros. Co.	....	....	7.38	....
Berwind-White Coal Co.	....	....	7.25	....
Chesapeake & Ohio Coal Co.	....	....	7.25	....
Jewett Bigelow & Brooks	7.25	....	6.95	....
Reed Coal Co.	....	....	6.75	....
Consolidated Fuel Co.	....	....	7.05	....
P. & S. Coal Co.	....	....	6.72	....

NEW YORK

Imperial Coal Co.	....	$9.85	....	$8.30
Johnson Coal Co.	....	....	$7.41	....
W. M. Hallenback	....	....	7.44	....
George D. Paris	....	....	6.56	7.06
H. P. Prydon & Bro.	....	....	7.68	....
W. C. Mason & Co.	....	....	....	7.25
Spring Coal Co.	....	....	....	7.35
Ainsworth Coal & Iron Co.	$6.99	7.24	6.79	7.02
Dexter & Carpenter	....	....	....	7.39
H. B. W. Huff	....	....	7.61	....
Riverside Coal Co.	....	....	6.85	7.40
W. C. Eskins	6.87	8.19	6.72	6.97
Stearn Coal & Coke Co.	....	8.40	....	7.36
Nonpariel Coal Co.	....	8.44	....	7.34
Pennsylvania-Virginia Coal Co.	....	....	6.35	6.85
Penn Fuel Co.	6.73	....	....	6.93
P. & S. Coal Co.	....	....	6.80	....

PHILADELPHIA

Peerless Coal Co.	$7.88	$8.68	$8.12	$7.69
Philadelphia Export Co.	8.80	9.50	8.50	....
Imperial Coal Co.	7.65	8.45	7.30	7.60
W. M. Hallenback	....	....	7.26	....
Geo. D. Paris	....	....	6.04	....
H. P. Prydon & Bro.	....	....	7.16	....
Burtner Coal Co.	7.77	8.78	7.65	7.88
Ainsworth Coal & Iron Co.	6.75	7.73	6.65	6.88
Dexter & Carpenter	6.57	7.52	....	....
Geo. Patchell & Co.	7.22	8.30	7.22	7.45
W. C. Eakins	6.18	7.03	6.13	6.38
Hall Bros Co.	....	8.14	7.04	7.24
Stearn Coal & Coke Co.	....	7.52	....	6.64
Belle & Harriman	7.10	....	....	6.95
Pennsylvania-Virginia Coal Co.	....	....	6.05	....
P. & S. Coal Co.	....	....	6.45	....

SAVANNAH

Godly & Griffin	....	$8.10	....	....
American Export Co.	....	....	$7.05	....
Harriman Coal Co.	$7.55	8.55	7.05	$7.75
U. S. Fuel Corp.	....	....	7.78	....
L. O. Scott	....	....	6.20	....
American Coal Co.	7.39	7.89	7.39	7.14
Taggart Coal Co.	7.38	7.68	7.28	7.03
Belle & Harriman	7.75	....	7.35	....

VIRGIN ISLANDS

Willard Sutherland	At current Prices
Berwind-White Coal Co.	$13.45 delivery
West Indian Coal Co., Ltd.	Coal handling, $3.50
Pendleton Bros.	$13.22 delivery
Wm. Corey Mann George Co.	99 d. trimmed in bunkers

1. Trimmed in bunkers U. S. Shipping Board's ships (owned or controlled) taken under the chutes, at the wharves or piers of the supplier, in lots as required.
2. Trimmed in bunkers U. S. Shipping Board's ships (owned or controlled) at anchor within harbor limits, from supplier's lighters or barges, in lots as required.
3. F.O.B. (under chutes at wharves or piers).
4. F.A.S. (ships at anchor within harbor limits from supplier's lighters or barges).

Answer Charge of Violating Injunction

ON March 8 Sid Hatfield, chief of police of Matewan, W. Va.; Ed. Chambers and Charles Kiser, now being tried in the Federal district court at Huntington, in Mingo County, for murder, were to present their answer to the charge of contempt of court for alleged violation of an injunction issued by Judge Edmund Waddell, Oct. 20, 1920. On Feb. 1 Judge Waddell cited the three men named as well as officials of district 17 to appear before him after complaint was made by the Red Jacket Consolidated Coal & Coke Co. that their employees had met with interference in trying to perform their duties.

Tidewater Exchange Sets Termination of Emergency at Oct. 15, 1920

OCT. 15, 1920, is the date determined as representing the termination of the emergency in coal of last year and beyond which assessment under Rule 33 of the Tidewater Coal Exchange will not be collected. It will be remembered that a committee of members, headed by W. M. Richardson, had protested this rule as having been outside the powers of the directors of the exchange to make, and a compromise between those opposing the rule in its entirely and the majority of the exchange has been sought through setting a limit on the period through which this rule should be effective. Rule 33 provides for penalties of 10c. per ton to be paid into the treasury of the exchange for coal held at Tidewater beyond certain time limits, and was designed primarily to prevent holding of coal in cars at the piers for speculative purposes during the period of high prices and car shortage last summer.

The Interstate Commerce Commission was addressed on Feb. 16 by a special committee of the exchange for the purpose of having the commission formally define the determination of the emergency. It is understood that the commission took the position that inasmuch as it had not taken formal cognizance of Rule 33 of the Tidewater Coal Exchange, Inc., it would not be embarrassed by having a date for the termination of the emergency announced by the exchange and it was willing to leave the matter entirely in the hands of the exchange. It is understood that the committee from the Board of Directors of the exchange is now negotiating with the Committee of Complainants, representing about two dozen of the members, in an effort to reach a settlement in the matter of payments to the exchange due under Rule 33 by these members.

The classification committee of the exchange has decided to publish a general classification of all mines shipping to the Exchange pools. This classification book is now ready for distribution, and will be sent to the railroads, members of the Exchange and consumers without charge. A supplement will be issued monthly and a charge of one dollar a year will be made to cover the expense of its printing and distribution. Extra copies of the classification books will be distributed at 25c. each.

Engineer Office at Philadelphia Asks for Bids on 9,000 Tons of Coal

SEALED proposals will be received by the U. S. Engineer Office at Philadelphia, Pa., until 12 m., March 28, 1921, for approximately nine thousand tons of bituminous coal for use on the floating plant in the Philadelphia Engineer District during the period April 1 to Sept. 30, 1921.

It is estimated that 9,000 gross tons will be required. The right is reserved, however, to increase or decrease the estimated quantity required without change in the prices named in the accepted bid. For purposes of proposals and payments the floating plant will be divided into classes 1 and 2. Class 1 shall include all dock scows and barges and class 2 shall include the tugs Vidette, Camden and Philadelphia and vessels of similar type. It is believed that about 7,500 tons will be required for vessels of class 1 and about 1,500 tons for vessels of class 2.

The coal must be a good free-burning, non-coking run-of-mine semibituminous steam coal, fresh-mined and clean, free from bone, slate, shale, stone, refuse, excessive dust or other objectionable matter. It must be of a quality that will not unduly clinker or clog the grates, and must be well adapted for successful use in the particular furnace equipment for which it is purchased.

The general form of the contract, the details of the specifications, and the method of sampling appear to be identical with those recently advertised by the navy.

New York City Breaks Precedent, Asking Bids on All or Part of Coal Requirements

DEPARTING from its time-honored custom of buying all coal for municipal use through the multitude of retail dealers and in small lots the City of New York is today advertising for bids for its coal supply in such a way that the whole quantity may be supplied by one contractor. Requirements for the municipality of New York in the period April 1, 1921, to March 31, 1922, are given as 317,681 net tons of anthracite, divided as follows: Broken, 1,517 tons; egg, 21,578 tons; stove, 12,656 tons; chestnut, 1,616 tons; pea, 5,016 tons; buck No. 1, 146,315 tons; buck No. 2, 60,960 tons; buck No. 3, 68,023 tons. In addition to these quantities of anthracite the city will require 85,814 net tons of bituminous coal, of which 73,421 tons must be run-of-mine and 12,393 tons must be slack.

The bidder has the option of naming the price for the entire quantity of anthracite or of bituminous coal under class A bid, f.o.b. mines, the city paying the freight and insurance: f.o.b., the Port of New York; or f.o.b. barges, alongside dock or wharves in the City of New York. In addition, there are provided schedules for every single lot from five tons to several thousand tons, after the manner in which the city obtained its coal in the past.

To coal shippers who bid on the coal at the mine attention is directed to a provision that the supplier guarantees to provide and equip at the mines for the city's use a proper laboratory for analyzing coal at a cost of not more than $5,000. The city will station inspectors and chemists at the mine and in the laboratory and sample and test every car of coal as it is shipped, the city promising to submit reports on each car within thirty-six hours. The city further promises to take the maximum possible quantity into storage during the summer months.

No producer is eligible to bid on this contract who has not been engaged in mining and preparing coal for at least five years and who has not shipped during the past two years at least three times the quantity of coal required by this contract. The producer must have a mine or mines in a field from which the coal has in the past been of a quality falling within the city's specification. These specifications require analysis showing not more than 3 per cent of moisture, 9 per cent of ash, 25 per cent of volatile, and 2 per cent of sulphur and of not less than 14,000 B.t.u. for run-of-mine. Specifications for slack differ from those for run-of-mine in that the allowable limit of ash is 11 per cent and for heat value is 13,600 B.t.u.. Penalties are provided for deliveries exceeding the specifications. The successful contractor on this form of bid will be required to deposit with the city the sum of $3,000, which will be drawn against for the purpose of paying all traveling and other expenses incidental to any inspection made in connection with the contract.

In case the contractor does not control the operation of a mine or mines and cannot establish a laboratory for the city's use at the mine, inspection will be made of the coal in barges, and any demurrage due to inspection of coal which falls below the specifications' basic requirements shall be paid for by the contractor. In addition to calling for bids on the coal provision is made for bids for barging and for hauling the coal to the different wharves or docks and to the points of final delivery within the city.

THE BOARD OF DIRECTORS of the Panama Railroad Co. on March 1 rejected the bids received for furnishing the company with 750,000 tons of coal (*Coal Age*, March 3, page 415). The proposals will be readvertised, but no date has as yet been fixed.

The National Coal Association will hold its annual convention in New York City during the week of May 16 instead of at White Sulphur Springs.

Calder Coal Bill Dies with 66th Congress; Frelinghuysen To Push Commissioner Bill at Extra Session

By Paul Wooton
Washington Correspondent

THE sixty-sixth Congress died at noon on March 4 and the Calder coal bill died with it. The bill, as originally drafted, is regarded as one of the most impossible schemes ever placed seriously before the Senate. In a greatly emasculated form, it finally did reach the calendar, but its consideration never was undertaken. Such progress as the measure made was due entirely to the fact that Senator La Follette chose to concentrate his powerful influence as chairman of the Committee on Manufactures to advance the bill to the farthest possible point. Senator Reed, however, questions the regularity of Senator La Follette's action in reporting the bill.

The whole proceeding at the last session of Congress looking to the regulation of the coal industry was unusual. The Calder investigation was intended to be a probe of the construction industry. Its particular objective was to be to devise means whereby private industry could be induced to provide the housing needed by the country so as to obviate government construction of homes, as became necessary in England. Incidental to that investigation, it became necessary to look into the matter of car shortage. Car shortage in the building industry was due principally to the need of the bulk of the open-top equipment for the transportation of coal. The Calder committee went deeper and deeper into the subject and before many weeks had passed the tail was wagging the dog. The committee never did get back to a real investigation of the building situation.

Outside Inspiration Blamed for Calder Bill

Finally Senator Calder was induced to introduce a bill the inspiration for which is thought to have come from outside of his committee. The investigation of coal by the Calder committee paralleled and duplicated work which had been in progress for nine months prior to the Calder probe. The work had been done by a sub-committee of the Committee on Interstate Commerce, of which Senator Frelinghuysen, of New Jersey, was chairman. When the Calder bill was introduced, it should have been referred to the Interstate Commerce Committee. Evidently by request, the bill was referred to the Committee on Manufactures. It presumably was assumed that Senator Frelinghuysen was not in favor of the type of control suggested by the Calder bill. At the same time Senator La Follette was particularly anxious to press just such legislation. All arrangements had been made to challenge the reference of the bill, but Senator Cummins, chairman of the committee, was away and Senator Frelinghuysen had obligated himself to provide an outing for the President elect in Florida. As a consequence, no protest was made and the rest is history.

Senator Frelinghuysen, however, expects to press his Coal Commissioner bill at the extra session of Congress. While that measure hardly has the endorsement of coal operators, it is doubtful if they would make any serious attempt to oppose it, as it does not come at all within the drastic category of the type of control provided by the Calder bill.

Senators Calder and La Follette continued to urge action by Congress on coal in the expiring hours of the late Congress. Senator Calder reviewed the charges against the coal industry before the special Senate committee of which he was chairman and also before the Senate Manufactures Committee, and also touched again on War Department coal purchases. He was interrupted from his prepared speech by numerous Senators, who gave their views on coal, among them Senator Edge, who referred to the high coal prices in Washington—$15.90 as compared with $13 in New York and $12.50 in northern New Jersey—and said that the Washington situation should be investigated.

Senator Calder said anthracite was very closely held in the East, 80 per cent of the supply being controlled by seven companies. Senator Edge urged that the District of Columbia situation be looked into but Senator Calder said his committee had deferred further consideration after the Manufactures Committee began hearings on the coal bill. Senator Calder said there was a combination of interests in Washington which sought to prevent other than members of the Washington Retail Coal Association from entering the business. The matter was being investigated by the Department of Justice and he hoped the combination would be broken up. Senator Simmons, of North Carolina, said anthracite had been selling for $18 in that State, and Senator Calder said he was glad that the North Carolinian bore witness to profiteering on anthracite.

La Follette Promises Relief to Washington

Senator La Follette also referred to the Washington combination and stated that action instituted probably would afford relief to the city at an early date. He said anthracite prices in the country had ranged from $16 to $22 and bituminous from $12 to $15. He said he had been unable to obtain consent of members of the Manufactures Committee for the Senate to consider the Calder bill.

Senator Walsh, of Massachusetts, said there was strong sentiment in his state for regulation in the interest of reasonable prices, and added that while the sentiment of the country generally was against government interference in private business, such interference would be justified in the case of a commodity essential and indispensable to life as was coal. Senator Kenyon said there might be some doubt as to whether bituminous was monopolized, but there was no doubt about monopolistic control of anthracite. Senator Walsh said the committee had not discussed anthracite as much as bituminous, but thought anthracite was in the hands of a few owners who not only controlled production but distribution as well.

Senator La Follette said anthracite was completely controlled by a monopoly, and Senator Walsh said "unquestionably anthracite is a monopoly." Senator La Follette said seven coal and seven railroad companies controlled 80 per cent of anthracite. Senator Walsh said he had letters from New England objecting to government regulation of coal, as it would lead to other industries. Senator Calder said anthracite was very nearly monopolized and that bituminous was so held that it was possible to raise and lower prices at will. Senator King, of Utah, thought the conditions had been brought about by combinations of middlemen and brokers rather than by concerted action of operators, and Senator Calder said this was true to a great extent. Senator La Follette said there existed between the mines and the consumer of bituminous a control of price and delivery that in effect imposed almost if not as great a burden upon the public as could be imposed if the deposits of coal were more limited, and that coal could be "cornered."

During Senator Calder's analysis of the War Department coal purchases Senator Pomerene, of Ohio, said that Colonel Wentz should have bought coal for the department at the mines instead of through brokers.

* * * * *

Reversing the action of its Judiciary Committee, which had voted to retain the Lever Food and Fuel Control law, the Senate, immediately following the Supreme Court decision nullifying the Lever law, passed the war repeal bill, repealing the Lever law but permitting the prosecution of pending cases thereunder. Senator Walsh urged repeal of the law, saying that the government had not been able to use it to any appreciable extent to correct coal profiteering. The Senator said the Judiciary committee had allowed the Lever law to remain when it reported the re-

peal bill some time ago because it might be valuable for punishing profiteering in coal, but that under the Court decision the entire law should be repealed.

Senator Smith of Georgia, thought the Lever law would still apply to coal and hoarding, as the court decision was only on part of the law. Senator Reed, of Missouri, thought the decision was entirely destructive of all phases of the Lever law. He pointed out that if section 4 of the law were eliminated it would still contain drastic war powers under which coal mines could be seized and under which the President could fix coal prices and require licenses for doing business. He asserted the whole Lever law was "badly conceived" and should be repealed. Senator Walsh agreed with Senator Reed, and an amendment by the latter repealing the Lever law entirely was then adopted. An amendment by Senator Walsh permitting prosecution of pending cases under the act was adopted, and the bill as amended was finally passed.

Attorney General Palmer withheld comment on the Supreme Court's decision, but it is understood that the Department of Justice will withdraw its instructions to District Attorneys for prosecutions under the Lever law. The department based its prosecution of the 1919 striking miners under section 4, upon which the court based its nullifying ruling, but it is understood the decision does not affect the recent Indianapolis indictments, which were under the Sherman law and which included those indicted last year under the Lever law.

N. Y. Coal Merchants Sift Fuel Situation; T. H. Watkins Fears Shortage in Autumn

THE regional meeting of the New York State Coal Merchants Association held at the Hotel Pennsylvania on March 3 was attended by about four hundred coal merchants in New York City, Long Island and points as far north as Poughkeepsie. The principal addresses were made by W. H. Williams, vice-president of the Hudson Coal Co., and Thomas H. Watkins, president of the Pennsylvania Coal & Coke Corporation, who spoke on the anthracite and bituminous coal outlook respectively.

Richard J. Wulff, second vice-president of the New York State Coal Merchants Association, presided at the morning session. M. N. Clement, general manager of the Coal Merchants Mutual Insurance Co., spoke to the members on insurance. Theodore S. Trimmer, of William Farrell & Son, took up the subject of insurance problems, and J. M. Bacon, president of the Bacon Coal Co., Brooklyn, spoke on the viewpoint of a policyholder in the Coal Merchants Mutual Insurance Co. on these questions. Other speakers in the morning session were F. M. Carpenter, vice-president, New Rochelle Coal & Lumber Co., whose subject was "Credit or Cash," and Roderick Stephens, vice-president, Stevens Fuel Co., who spoke on "Avoidable Losses."

Edward Schmidt, Executive Committee chairman, New York State Coal Merchants Association, presided at the afternoon session. Railroad claims and the retailer were the subjects of an address by Stanley M. Houck, traffic counsel, National Retail Coal Merchants Association, and the matter of legislation was the subject of an address by John E. Lloyd, president, National Retail Coal Merchants Association. Mr. Williams, in speaking of the coal outlook from an anthracite standpoint, called attention to the increased cost of mining and also referred to the resizing of coal.

Mr. Watkins, who spoke on the same subject from a bituminous standpoint, told the members that he did not see how the price of bituminous coal could go below last year's prices without increased tonnage or without great loss. He said that the situation as a whole is rather a serious one—one in which the whole country is concerned. He said that wages have increased more than one hundred per cent, but wages are not alone responsible for the increased cost of materials running from 300 to 400 per cent. A large part of the labor engaged in the production of coal today finds its earnings reduced about 50 per cent because of lack of employment.

Referring to the regulation of the coal industry proposed in the Calder bill, Mr. Watkins said: "No matter what the activities may have been by speculators, by irresponsible operators, jobbers and retail coal men during the past year, all of the conditions surrounding the industry would be far worse if such men as Senator Calder had charge of regulating it."

Mr. Watkins said that what is wanted in the bituminous coal business is stability, business sense, and decent trade conscience, and he was glad to say that there is a growing knowledge on the part of the producers and the public generally of what it costs to produce coal, of what the industry needs in the way of a fair return on its capital and of what it needs to do in the fair treatment of its labor. He said he looked with confidence toward the future, believing that the conservative elements in the bituminous coal field will be able to exert a definite influence toward stabilization of production and distribution, at the same time giving the consuming public satisfaction.

Mr. Watkins said that in his judgment demand will increase from now on. He said he believed consumption to be greater than production at the present moment, and unless stocks are fairly well provided for in the immediate future, there may be difficulty in the fall and winter on the part of railroads in carrying what will be needed then.

The meeting concluded with a banquet in the evening attended by more than five hundred. Michael F. Burns, president of Burns Bros., presided, and Harry T. Peters, vice-president, Williams & Peters, was the toastmaster. The Rev. John L. Belford, of Brooklyn, spoke, and the other speakers included Thomas F. Farrell, president of Farrell Co. Ex-Governor Alfred E. Smith, who was to have spoken on "Industry," was ill and could not be present, and William E. Knox, vice-president of the Bowery Savings Bank, who was to have addressed the coal men on "Savings," was unavoidably absent.

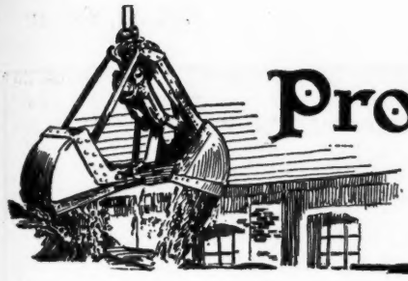
Hampton Roads-to-Rotterdam Coal Freight Rate Now $3.85; $21 a Year Ago

IN ITS report of business conditions for February the Federal Reserve Board says the downward trend of freights was emphasized when the North Atlantic United Kingdom conference lowered coal charters to $3.85 a ton from Hampton Roads to Rotterdam and to $5.50 a ton to River Plate ports. In February, 1920, the quotations were $21 to Rotterdam and $13 to Buenos Aires. Demand for bituminous coal, the board states, has fallen off considerably as a result of the mild weather, curtailment of operations by industrial plants and contraction in tonnage used by railroads. Mine prices reflect the market situation, but the Board says retail prices "have not followed."

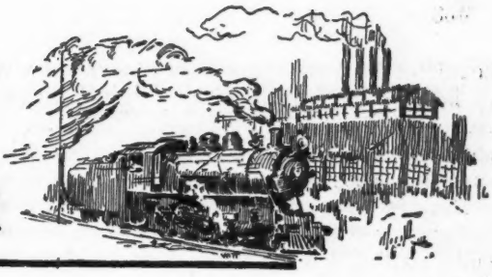
Retailers attribute the situation to contracts previously made and to high freight rates. Dealers in the Richmond district do not appear to have large stocks on hand but are purposely limiting them because of price uncertainties, the Board adds. The coke market reflects the situation in the iron and steel industry, as prices have declined and operations been curtailed. There is a poor demand for buckwheat and many of the larger producers are storing this size with a view to marketing under more favorable conditions. Steam sizes generally are beginning to feel the competitive effect of the low price of bituminous coal, and sales are not as brisk as heretofore.

Holds Hearing on Cancellation of Rates on Slack Coal on Norfolk & Western

ON MARCH 2 the coal, coke and iron ore committee for Central Freight Association territory announced a public hearing on March 10 to consider cancellation of rates on slack coal from mines in the Pocahontas, Tug River and Clinch Valley districts of the Norfolk & Western Ry. to stations on the Scioto Valley division of the Norfolk & Western Ry. north of Kenova to Ironton, Ohio, inclusive, and from the same origin districts to stations on the Norfolk & Western Ry.—Hanging Rock, Ohio, to New Boston, Ohio, inclusive—leaving the higher rates which apply on other grades of coal to apply on slack coal. The hearing is being held in Pittsburgh, Pa.



Production and the Market



Weekly Review

SO LITTLE is stirring in industry that the railroads and the shippers of coal have less to do than at any time in the last six or seven years. Coal companies are figuratively tightening up their belts and sitting tight. The spot market is quotable more because of prices offered by shippers than by business closed. A fair sample of what is going on is found in the situation in the Fairmont district with respect to business in railroad fuel. The Fairmont region has always been the largest supplier of railroad coal and this year negotiations have been going on for early spring contracts. It is reported that the railroads are freely offering to contract for the coming year at $2.50 per net ton, but that producers are holding out for $2.90 on lower grades and $3@$3.25 for the best grades. There seems to be a very general feeling—possibly founded on hope—that the buyer is going to stay out of the market until the last minute and that when he does start to buy the rush will produce another sharp upward swing in prices with repetition of serious car shortage next autumn.

Opinion is not divided on the question of whether a strong demand next fall will produce a car shortage, but there is no unanimity in the views of different authorities as to whether the demand will materialize. It is being pointed out that the railroads, like the mines, are curtailing operations and releasing personnel and that if orders for coal and for coal cars are suddenly revived without warning, difficulty will at first be experienced in meeting the demand. In the Middle West the railroads are cutting expense by setting bad-order cars on the sidings without repair, the course dictated by the expediences of their purse but without regard to future difficulty.

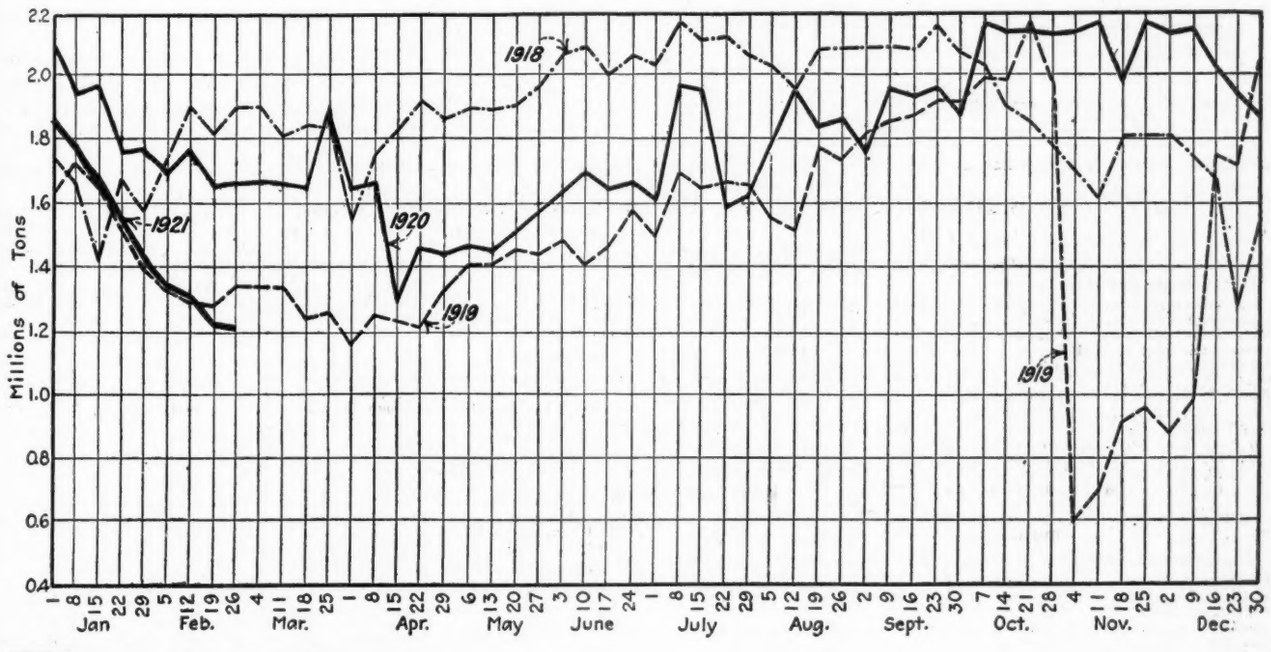
The Interstate Commerce Commission on March 3 permanently vacated Service Order 17, issued on Sept. 16, 1920. This order had to do with furnishing open-top cars to wagon mines. As the wagon mines are no longer in operation this particular order was of course without effect.

Bituminous Output Seems at Bottom

The production of bituminous coal, which for several weeks has been at a rate in excess of 7,000,000 tons, is considered to have reached bottom for the present, but lower figures are anticipated in April when many of the contracts on which coal is now being shipped will have expired. To a very limited extent some of the larger shippers have been able to renew these contracts but they report that consignees for the most part hold out no assurance of taking more than the barest minimum quantity for the next few months.

Anthracite shippers are not going to give summer dis-

Daily Average Production of Bituminous Coal*



*From weekly report of Geological Survey.

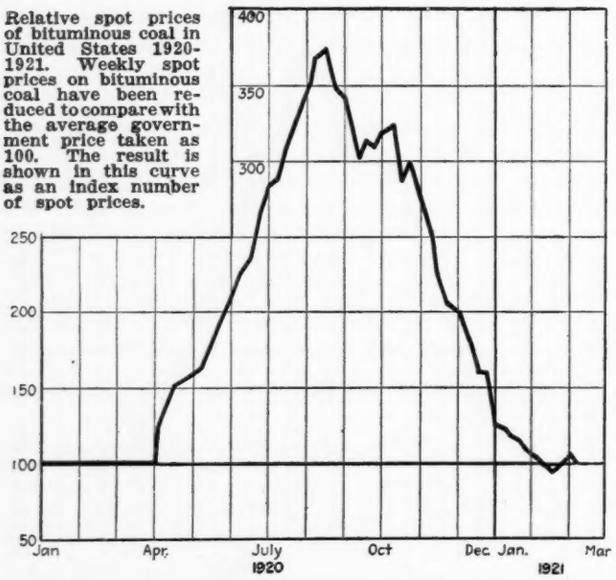
counts both because they allege they cannot afford to do so because of their inability to move steam sizes at a reasonable figure and because they have the opinion that sufficient domestic sizes will be ordered by the consumers to keep mines in operation at a reasonable rate.

Beehive coke production is undergoing steady curtailment as demand from the iron furnaces falls off. The policy of the iron producers is to maintain operation of their byproduct plants and meet the lessened requirements for coke by shutting down beehive ovens.

BITUMINOUS

Washington's Birthday was observed as a holiday at many mines, although with little apparent effect on production, as no difficulty was experienced in filling all available orders on the remaining days of the week ended Feb. 26. The rate of production continued to decline during the week, total output being placed by the Geological Survey at 7,334,000 net tons, less by 159,000 tons than the figure for the week ended Feb. 19. Production is now at a lower rate than at any time in the last four years. Loadings on the first two days of the opening week in March indicate a further decline in production.

Taking the country as a whole, "no market" losses now exceed 50 per cent of full time operation of the mines and operating time is but 40 per cent. Central Pennsylvania, Westmoreland, eastern Ohio, Alabama and the majority of the Middle West operated with less than half time lost because of no market, with prospects for poorer market to follow.



Relative spot prices of bituminous coal in United States 1920-1921. Weekly spot prices on bituminous coal have been reduced to compare with the average government price taken as 100. The result is shown in this curve as an index number of spot prices.

Estimates of Production

FROM THE WEEKLY REPORT OF THE GEOLOGICAL SURVEY (NET TONS)

BITUMINOUS COAL

Total Bituminous, Including Coal Coked

	1921 Week	1921 Coal Year to Date	1920 Week	1920 Coal Year to Date
Feb. 12(b)	7,859,000	475,684,000	10,484,000	417,964,000
Daily average	1,310,000	1,779,000	1,747,000	1,557,000
Feb. 19(b)	7,493,000	483,178,000	9,513,000	427,477,000
Daily average	1,249,000	1,768,000	1,585,000	1,558,000
Feb. 26(c)	7,334,000	490,512,000	10,120,000	437,597,000
Daily average	1,222,000	1,756,000	1,687,000	1,560,000

(b) Revised since last report. (c) Subject to revision.

ANTHRACITE

	1921 Week	1921 Coal Year to Date	1920 (a) Week	1920 (a) Coal Year to Date
Feb. 12	2,048,000	79,665,000	1,822,000	80,782,000
Feb. 19(b)	2,010,000	81,675,000	1,504,000	82,286,000
Feb. 26	1,825,000	83,500,000	1,767,000	84,053,000

(a) Less 2 days' production during first week in April, to equalize number of working days covered for the 2 years. (b) Revised since last report.

BEEHIVE COKE

Week Ended Feb. 26(a) 1921	Feb. 19(b) 1921	Feb. 28 1920	1921 to Date	1920(c) to Date
194,000	219,000	433,000	1,917,000	3,708,000

(a) Subject to revision. (b) Revised from last report. (c) Less 2 days' production during New Year's week to equalize number of days covered for last two years.

Spot market conditions are unimproved. Steam users for the most part have reserves ample for present requirements and business is so unencouraging that even distress coal is not always readily absorbed.

FEW CONTRACTS CLOSED; CONSUMERS USE RESERVES

Practically no contract developments are reported. Negotiations are being held back by the differences in price views held by consumers and producers and by the extent of the reserves in the hands of consumers which enable them to eke out a considerable future supply by a brief entrance into the spot market.

Buying for the Lakes is dragging. Some little tonnage is being forwarded to the lower ports, but this business is mainly confined to producers having allied dock interests. The Northwest coal industry is in a highly competitive state

Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F.O.B. Mines

Coal	Market Quoted	Gov't Price	Feb. 1 1921	Mar. 1 1921	Mar. 8 1921†
Low-Volatile, Eastern					
Pocahontas mine run	Columbus	$2.35	$3.75	$3.50	$3.50
Pocahontas lump	Columbus	2.60	6.25	5.75	*6.50*
Pocahontas mine run	Chicago	2.35	2.75	3.75	.....
Pocahontas lump	Chicago	2.60	4.25	5.25	.....
Pocahontas mine run	Boston*	....	6.00	5.80	*5.50@ 6.00*
Pool 1	New York	2.35	3.75	3.55	*3.00@ 3.25*
Pool 1	Philadelphia	2.35	3.60	3.55	.....
Pool 1	Baltimore	2.35	3.25	3.15	*3.00*
Clearfields mine run	Boston	2.95	2.75	2.55	2.15@ 3.00
Somersets mine run	Boston	2.95	3.55	3.10	2.50@ 3.75
Pools 10, 11	New York	2.95	2.75	2.50	*2.15@ 2.65*
Pools 10, 11	Baltimore	2.95	2.80	2.35	**2.50@ 2.75**
Pools 10, 11	Philadelphia	2.95	2.80	2.50	2.25@ 2.75
Pool 18	New York	2.95	2.10	....	*1.85*
Pool 18	Philadelphia	2.95	2.15	2.00	2.00
Pool 18	Baltimore	2.95	2.10	....	*2.00*
High-Volatile, Eastern					
Pittsburgh mine run	Pittsburgh	2.35	2.50	2.35	2.25@ 2.50
Pittsburgh s'd. gas	Pittsburgh	2.35	3.25	2.85	2.75@ 3.00
Kanawha mine run	Columbus	2.70	2.35	2.50	*2.25*
Kanawha lump	Columbus	2.95	4.80	3.75	3.75
Hocking mine run	Columbus	2.50	2.40	2.25	*2.15*
Hocking lump	Columbus	2.75	3.85	3.50	**3.65**
Pitts. No. 8 mine run	Cleveland	2.35	2.50	2.35	2.25@ 2.50
Pitts. No. 8 lump	Cleveland	$2.60	$3.75	$3.75	*$3.25@$4.00*
Pool 34 (54, 64)	Philadelphia	2.50	2.25	2.25	**2.25@ 2.50**
Pool 34 (54, 64)	New York	2.50	2.25	2.30	*2.00*
Pool 34 (54, 64)	Baltimore	2.50	2.25	2.15	2.00@ 2.25
Midwest					
Franklin, Ill., mine run	Chicago	2.35	2.75	2.75	*2.25@ 3.00*
Franklin, Ill., lump	Chicago	2.55	3.80	3.80	*3.50@ 4.00*
Central Ill., mine run	Chicago	2.35	2.15	1.85	1.50@ 2.25
Central Ill., lump	Chicago	2.55	3.15	2.60	.....
Ind. 4th Vein, mine run	Chicago	2.35	2.15	2.60	.....
Ind. 4th Vein, lump	Chicago	2.55	3.35	3.30	.....
Ind. 5th Vein, mine run	Chicago	2.35	2.15	2.40	.....
Ind. 5th Vein, lump	Chicago	2.55	3.10	3.05	.....
Standard mine run	St. Louis	2.35	2.00	1.95	1.90@ 2.00
Standard lump	St. Louis	2.55	2.35	2.60	2.50@ 2.75
West Ky., mine run	Louisville	2.35	2.50	2.25	**2.35@ 2.50**
West Ky., lump	Louisville	2.60	3.95	3.15	3.00@ 3.25
South					
Big Seam mine run	Birmingham	2.45	3.00	3.05	*2.70@ 3.25*
Big Seam lump	Birmingham	2.75	3.50	3.75	3.25@ 4.25
S. E. Ky. mine run	Louisville	3.00	2.75	2.75	2.50@ 3.00
S. E. Ky. lump	Louisville	3.25	5.00	4.00	*3.75@ 4.00*

* Gross tons, f.o.b. vessel, Hampton Roads.

† Advance over previous week shown in **heavy type**, declines in *italics*.

as the docks strive to reduce their holdover as much as possible before the season opens. Producers hope for an early outlet for their tonnage in this direction but to date there has been little contracting at any fixed price.

While *Coal Age* index of spot bituminous prices dropped one point from last week and now stands at 100, it is two points above the low mark of 98, registered in the middle of February.

TIDEWATER

A total of 1,026,000 gross tons was dumped at all piers at Hampton Roads during the month of February. During the last week in February 204,000 tons were dumped, which was in itself a new low record. Prices remained approximately the same. Accumulations at Tide have been greatly reduced as has tonnage awaiting cargo. Coastwise shipments to New England are very light and beyond certain stable contracts there is practically nothing moving overseas. Even South American business is light.

All-rail coal to New England declined in volume during the week ended Feb. 26. Shipments through the five rail gateways amounted to 3,068 cars, a decline of over 300 cars when compared with the preceding week.

ANTHRACITE

Hard coal demand slackened considerably and both independent and company quotations contained on the same level, $8.10 for stove and chestnut while egg dropped to $7.60. Domestic sizes are accumulating while steam is an increasing source of worry to all producers.

It now appears unlikely that there will be any spring reduction on domestic sizes and that company circulars will stand unchanged from the winter schedules, although steam coals will probably have to come down. The Jeddo-Highland Coal Co., one of the largest independents, announces reductions as of Mar. 1 from mine prices in effect during the winter on egg, stove and nut from $9.25 to $8.75 and on pea from $7.50 to $6.75. Owing to the continuance of the high labor rates under the 2-year agreement expiring in March, 1922, no further reduction is contemplated, but the normal increase by Sept. 1 may be expected.

COKE

Beehive coke production continued its decline during the last week of February. According to the Geological Survey the output was 194,000 net tons or a decrease of 11 per cent when compared with the preceding week. The cumulative output for the calendar year amounts to barely half that of the corresponding period of 1920.

The Connellsville spot market is quotable at $4.50 for furnace and $5.50@$6.50 for foundry, with asking prices on contract $5@$5.75 for furnace and $6.50 and upward for foundry.

Reports From the Market Centers

New England

BOSTON

Very Dull Market — No Contract Developments — Accumulations Again at Tide—Anthracite Very Quiet.

Bituminous—Extreme dullness in the current market shows no abatement. Steam-users have for the most part such ample reserves and business is so unencouraging that even "distress" coal is absorbed only with the greatest difficulty. On the other hand, there is less coal offering than was the case a fortnight ago; shippers seem to have relaxed their efforts to move current output and there are fewer soft spots. Seldom, even in midsummer before the war, have we seen a situation so bare of significant features. The trade is simply marking time and waiting for better things.

There are practically no contract developments to be reported. The number of buyers who ordinarily take from 25,000 to 50,000 tons for delivery through the season and are now planning to make spot purchases later of perhaps 40 per cent, the other 60 per cent being now on hand or due in March and April, would surprise many operators who are not in close touch with the situation here. This factor will have an important bearing on the course of business in the next three months.

At several of the terminals, and notably at Hampton Roads, there are again some accumulations, notwithstanding strenuous efforts to keep down production. One difficulty is that three days' running yields much more than 50 per cent of one week's output and all the sales agencies face a most reluctant market in every direction. Tonnage at Norfolk and Newport News is not so great as a month ago, but it is enough to press the shippers. Coastwise shipments are very light, and offshore, beyond certain stable contracts, there is nothing whatever.

The proposals opened on Feb. 28 by the Shipping Board give some indication of prices on the smokeless coals during the season about to open. While most of the bids were well up to a basis that would bring $4 per net ton mines, the low figure was $6.50 at Hampton Roads, or $3.30 per net ton mines. One might infer from this that the contract price on commercial business would turn out to be very close to $6.50 f.o.b. vessel at Norfolk or Newport News.

Current quotations are shown in the Weekly Review. Pocahontas and New River are $8.50@$9 on cars Boston, Providence, or Portland.

Anthracite—All sizes, so far as delivery at March prices is concerned, are fast becoming a drug on the market. There is growing a well-defined opinion that the price basis is certain to be lower in April, and because the public is expecting a material reduction in retail prices the dealers are disposed to take chances and postpone taking coal until lower prices can be had. Nothing will so surely restore the demand as continued withholding of purchases.

Rates on anthracite in Reading barges were reduced on March 1 to $1.55, Philadelphia to Boston, the previous rate having been $2.10.

Tidewater—East

PHILADELPHIA

Anthracite Continues in Good Demand — April Reduction Unlikely — Pea Heavy, and Steam Coals Worse—Bituminous Unchanged—Prices Are Firm—Contract Situation Still Thick.

Anthracite—Despite price recessions by some independent shippers, these concerns are considerably above company prices and seem to be able to market their coal fairly well, at least so far as the large sizes are concerned. The independent prices at this time average about as follows: egg, $8.50; stove and nut, $8.85 and pea, $6.50, as compared with average company prices of: egg, $7.70; stove and nut, $8.05 and pea $6.30. It must be remembered that the so-called company prices show a variation of from five to ten cents a ton, as has been the case for the past several years.

All of the companies report no difficulty whatever to market their family coal; it is actually a fact that dealers largely dependent upon company coal have been quite anxious for stove and nut the past week and it has been this that has enabled the independents to get their coal moved at the present prices quoted. On the other hand we know of some egg, stove and nut being sold from 10 to 15c. below company circular. These sales are made by the concerns who marketed a good deal of $13@$14 coal during the past year and now find it necessary to cut quite sharply.

The consumer persists in his hope that coal will be reduced on April 1, but he is soon likely to be disabused of this idea; the retailer is already converted as this week one of the biggest shippers have had their salesmen notifying their trade that there will be no reduction on April 1. This coming from the

company that has been taking the lead in the past several years would seem to indicate the policy of the shippers.

All of the above has convinced retailers that the best investment around the first of April is a yard full of all sizes and they are really making efforts in that direction.

Steam coals are not at all improved and buckwheat of good quality can be freely bought for $3, rice at $2 and less and barley at almost any price. Many of the independent shippers are losing money by having many cars of steam sizes standing awaiting consignment.

Bituminous—Slack times continue in the soft coal trade, with very few inquiries. Many houses have actually taken their salesmen off the road for the time being. Manufacturers are only buying for their actual needs and as a large proportion of them have big stocks they continue to eat into these without replenishing. Most of the consumers admit that the bottom of the bituminous market has been reached and often say that they would buy coal as an investment at present prices were it not for the fact that they have their capital tied up in their business. Prices are quoted in the Weekly Review.

Some big buyers of fuel, such as utility plants, are showing some desire to get under contract for the coming coal year, but the general report is that there is little chance of agreement with the producer. Despite the fact that some large producers have closed business at $4.35, we hear of houses with very good coal even asking as much as $5 for contract. At this rate no business is being done, as the big buyer still prefers the spot market.

NEW YORK

Domestic Coals Accumulate Rapidly—Spring Cut Appears Unlikely—Independent Prices Reach Company Circular—Bituminous Market Dull—Little Buying and Prices Down.

Anthracite—With stocks of domestic sizes accumulating in retail yards and the public waiting for some definite announcement regarding prices after April 1, the situation has changed considerably during the past couple of weeks. There has been a pronounced easing up and all sizes are now plentiful.

The situation regarding independent coals is being reflected at many of the operations, most of them being either idle or working on a curtailed schedule. Premium coals have disappeared from the market, most prices being quoted around the company circular.

Steam sizes are weak. Stocks are accumulating rapidly and retail dealers have about taken in all they can comfortably care for. It is however, apparent that unless more of these sizes can be absorbed it may be necessary to curtail mining in order to keep down the supply. The following range of quotations indicate the trend of the market for independent coals: Buckwheat $2.75@$3; rice, $2.25@$2.75; barley, from 75c. up.

Bituminous—Curtailment of production has prevented a further slump in prices. There are no favorable signs and salesmen who have circulated among the trade, report there is no desire on the part of consumers to buy. Those who have coal in their bins are satisfied to consume it rather than make new purchases even at the present low prices, while those who must buy are only purchasing their immediate requirements.

There is a growing tendency on the part of consumers to ask for individual coals to the detriment of the pool coals. The export and bunker trade is depressed. Many boats continue to lie in the harbor. There is comparatively little demand for coal for export and very little new business is said to develop.

It will be May 1 before the contract business will get under full swing, some of the trade believe. There is no desire on the part of consumers to close contracts now, and operators continue to quote on an average of $4@$4.25, although it is said some shippers are shading these prices 25c.

On March 4 there were 2,222 cars inside the pools and 1,614 cars outside the pools at the various docks. Most of this coal was in Pools 1, 4, 9, 10 and 71.

Mine spot prices are shown in the Weekly Review. Quotations for some pools, f.o.b. Tidewater ranged about as follows: Pool 1, $6.50@$6.75; Pool 9, $6.15@$6.25; Pool 10, $5.85@$6; Pool 71, $6.25@$6.40; Pool 11, $5@$5.25.

BALTIMORE

Bituminous Trading at Lowest Point—Prices Very Soft—General Business Feeling After Inauguration Is for Early Betterment.

Bituminous—With the inauguration a thing of the past there is a general tendency in business as a whole to feel out the possibilities of early re-awakening. In the present market there is much cutting in selling and consumers are not only dictating prices but also are insisting on certain classes of delivery by specifying mines for production shipments.

In the trade, however, there is no idea that the consumer will dictate contract terms after April 1. As a matter of fact, contract quotations on best coals over any considerable delivery period are $4@$4.50, net ton f.o.b. mines. A little later the price is more likely to be around $5 than it is to sink to the level of the present spot market, in which general quotations are around $2.75@$3 for high-grade steam, with some jobbers and other interests here offering considerable quantities at times as low as $2.50. Lower-grade steam is down to $2@$2.25.

Gas coals are hardly quoted at all, and the majority of operations that usually ship here for export or coastwise movement are closed. Pool reserve continues more than ample and the dumpings light. The export movement from Baltimore for the entire month of February only totaled 84,249 tons cargo and 9,420 tons bunker.

Anthracite—Hard-coal men are about in the fix of that famous war song, "Where do we go from here boys." The majority look for little change in the average wholesale price, which will mean practically no change from the existing winter retail schedule.

HAMPTON ROADS

Tide Accumulations Disappear—Prices Unchanged—Market Stagnant.

A total of 1,026,000 tons was dumped at all piers in Hampton Roads during the month of February, which was around 100,000 tons less than for the same month in 1920. During the last week in February 204,000 tons were dumped which was, in itself, a new low record.

Prices remain approximately the same; high-volatile pools in many instances sell for as low as $5 and other pools range $6@$7. Accumulations at Tide have been greatly reduced, as has tonnage awaiting cargo. Shippers look forward to the new coal contract year, April 1, as promising a more stable market, not only for present uses but for fall and winter surplus.

The following cargoes cleared from this port during the week ended March 4:

Am. SS Franklin, for Italy, 7,303 tons; Du. SS Aurora, for Curacao, 1,335 tons; Jap. SS Etna Maru, for Rio de Janeiro, 8,148 tons; Jap. SS Thames Maru, for Montevideo, 6,676 tons; Braz. SS Parnahyba, for Italy, 7,690 tons; Am. SS Javary, for San Pedro, 451 tons; Am. SS West Mingo, for Tiburon, 6,829 tons; Nor. SS Haugarland, for Amsterdam, 9,448 tons; Nor. SS Kagera, for Rio de Janeiro, 7,125 tons; Br. SS Roath, for Havre, 6,369 tons; Br. SS Whahatone, for Auckland, 3,360 tons; Nor. SS Helder, for Dunkirk, 4,117 tons; Am. SS Panaman, for Alexandria, 7,701 tons; Russ. SS Irtysh, for Caldera, 5,037 tons; Dan. SS Progress, for Denmark, 6,206 tons; Br. SS Coquetmede, for Buenos Aires, 5,009 tons.

BUFFALO

Coal on Track Disappearing—Short Mining Will Put Strength in the Market—Anthracite Plentiful—Lake Loading Soon.

Bituminous—Careful observers say there is not nearly the amount of coal in transit that was the case a month ago. One coal man, who makes frequent trips over the Pennsylvania says that not long ago there was a matter of a thousand cars of bituminous standing on sidings and in yards not over 20 miles out of the city. He believes that there is not more than 20 cars now. This means of course that consumption is considerably greater than production and that if this state of things cotinues long the market must stiffen somewhat, in spite of the failure of business to improve. Coal piles in railroad and factory yards are not what they were, though some consumers are still over-loaded. These latter are mostly those who have kept up their contracts in loyal response to the action of the sellers who managed to do the same when prices were high.

The effort to obtain contracts does not succeed well. Both buyer and seller try to make them, but the consumer cannot be convinced that current prices mostly include a loss to the producer and so the offers are about half a dollar less than the operator will accept.

Spot bituminous prices vary considerably, but may be set down at $3.50 for Youghiogheny gas lump, $3 for Pittsburgh and No. 8 steam lump, $2.50 for all steam mine run, $2.25 for gas slack and $2 for steam slack.

Anthracite—There is no longer any shortage in the supply. The notion is abroad that prices are going to be lower through the summer and unless this can be discredited it is going to be hard to get consumers to lay in a winter supply early. Failure to buy early would be very risky, especially if the miners could not be kept at work through the summer.

There will soon be coal enough here to start loading into Lake vessels. It is expected that this work will begin within a week. At least two companies will be ready to take tonnage at the outset. This will insure a good start and ought to provide plenty of Northwest coal in the fall.

Coke—The supply locally is large, so that buying is light. Coke prices are weak and lower, on the basis of $5.75@$6 for 72-hour foundry, $5 for 48-hour furnace, $4.50 for off-grades and stock and $6.25 for domestic sizes, to which add $3.64 for freight to Buffalo.

Northwest

MINNEAPOLIS

Better Tone to Market—Some Industrial Resumption—Prices Fairly Firm.

There was a little better tone to the coal business during the past week, while cold weather was stimulating as heavy consumption as the winter has seen. Zero weather was on hand for several days, and it helped run down stocks in the hands of consumers, even if it did not register much in the way of new orders.

There has been some demurrage coal to be disposed of, but it is not enough to have any serious effect on the market. Sales below the market are for the purpose of getting rid of a temporary surplus and are not accepted as governing the market for any period.

Industrial consumption should show some improvement from now on, for a number of plants which have been down for some weeks have resumed operation, though sometimes upon a smaller scale. This will help steady the market on steam coal, which has been sadly demoralized. People in the local trade are inclined to predict a steady improvement in the market conditions. They point out that screenings are even now firmer. Where they sold as low as $1.25@$1.50 at the mine, prices have been made as high as $2.50 lately. Lump coal is expected to open at around $3.50 at the mines, for the better grades of Illinois, and some predict an advance during April, May and June of 25c. a ton each month to $4.25.

But while this prophecy may prove true for the new season, it is the remainder of the current season that is going to help or harm the showing for this winter. Despite a desperate dullness for current business, there seems to be a slightly better feeling in the trade, as though the worst were over. It begins to look as though the turn had come, commercially. The Northwest has begun to show better business in different directions. The Supreme Court decision favoring the farm loan bank means that there will be released for loans to farmers a great deal of money which will ease up the "frozen credit" situation of the rural districts. Once there is a loosening of the money situation, business will speedily improve in every direction.

MILWAUKEE

Another Cut in Soft Coal—Pocahontas Is Weakened by Heavy Receipts—Coke Inclines Downward.

Balmy weather continues to undermine the fuel market and the coal trade is practically dead. Retail deliveries are on a summer basis and shipments out by rail are only a shadow of what they usually are at this season of the year.

March brought another cut of $1 per ton in soft coal, making the second reduction since Jan. 1. If present conditions continue there will be still further shading, as the opening of navigation is only a little over a month away. Anthracite remains unchanged. The yards are barren of hard coal and the market is supplied by rail.

There is a surplus of Pocahontas on the market, owing to the fact that dealers banked on reasonably cold weather in February and ordered freely. As a result receipts are far ahead of the demand and many cars are on track between here and the mines. Pocahontas mine run now sells at $11.25, but egg and nut hold at $13.50. Pocahontas for steaming purposes is quoted at $10. Illinois and Indiana coal is now listed at $8. Gas coke has been cut to $13.50 for nut and $12 for small nut to meet the recent cut in solvay coke. This market is glutted.

Inland West

COLUMBUS

Coal Trade Settles Back Into Quietude—Increasing Interest in Contracts—Lakes Trade Not Encouraging.

After a week of rather good domestic business the trade has again settled down to inactivity. Everyone appears to be playing a waiting game and contracting is held up as a result. Quite a few inquiries have been received by operators on steam tonnage but prices have not settled down sufficiently to contract for large quantities. Resumption of manufacturing is still slow and consequently fuel requisitions are not large. Reserve stocks are still important and many users will not be in the market for some time.

The Lake trade does not loom up very encouragingly at present. A few vessels at Toledo and other ports have been loaded by concerns having their own upper docks, but this is only a drop in the bucket. Indications point to a late opening of the ore trade and consequently coal shipments will be delayed. It is believed that there will not be much movement before May 15. Practically no Lake contracts have been closed up to date.

The domestic trade is slow because of the mild weather. Retail stocks are still large. Prices are rather steady at former levels, with Hocking lump $7.50@$8, West Virginia lump $8.50@$9.25, and Pocahontas lump around $10.50.

Production is still low and the tendency is downward in all producing fields. Little change is expected in the present month.

CHICAGO

Cold Weather Aids Retailers—Small-Lot Buying Increases—Steam Coals Stronger.

One or two days of unexpected cold weather has done a great deal for the retail trade. On account of this cold snap dealers have been able to move some of the coal that has been bothering them recently.

Practically all retailers are very anxious to move their old stock so that they will be able to load up their yards with fresh coal, purchased at the present prevailing low prices. The public is buying in very small quantities. In fact it is no uncommon thing to have people come into a yard and buy 25c. or 30c. worth of coal. One dealer has informed us that such purchases have risen about 300 per cent. This is probably because a great many of our factories are down and labor consequently is buying in very small quantities in order to preserve its funds.

The steam market is in a little better condition, principally because the domestic trade is so stagnant that little steam coal is offered. Those operators who had foresight enough to put their steam coal in storage last month are now realizing 50c.@$1 over the prevailing prices of February.

DETROIT

Buying Revival Awaited—Prices Fairly Stable—Demand Is Weak—Receipts Are Greatly Reduced.

Buyers have apparently lost all interest in the offerings of wholesalers and jobbers. Very little business is being transacted in either the domestic or steam division. Conceding that the lack of demand for steam coal is a result of the general depression in manufacturing and industrial lines, the trade is making few efforts to force the market.

The opinion is expressed by some of the jobbers, however, that despite the apparent lack of buying interest and greatly reduced consumption, the actual amount used is greater than the volume of present production. Quite a number of the steam plants are using a small amount of coal, obtaining it from re-

serves or from stocks in retailers' yards. Continuance of this policy is very likely to lead to a shortage of supply later which may be reflected in another interval of higher prices. It is explained that development of such a situation may be prevented by the slowness of the business revival.

Lump coal from Ohio is quoted at the mines $3@$3.60. Mine run is $2.60 and slack $2.25, West Virginia and Kentucky slack bringing about the same price. West Virginia lump is quoted $4 for 4-in. and $3.75 for 2-in., with egg $3.50, mine run $2.75 and smokeless mine run $3.75.

ST. LOUIS

Market Is Slightly Better in St. Louis —Outside Call Dull—Contract Movement Lightens.

There has been a slight improvement in the market in the past few days, mostly in the demand for screenings. There has been no real cold weather, but a slight demand for lump helped to steady the market.

A noticeable call for screenings came from steam plants that up to the present have not been using much coal. As the screening market advanced, lump prices began to go down a trifle. Screenings are in good demand at around $1.25 for trunk line coal, that is, coal that will move out of St. Louis proper, while local screenings are somewhat less. Two-inch lump that was selling $2.50@$2.75, is down to $2.25 and hard to move.

The country call is unusually light right now. A survey of the situation develops that nearly all the flour mills in the Mississippi Valley are running about two days a week and other industrial plants are not doing much better.

Domestic call for Carterville coal is rather easy, as is usual at the tail end of each season. Again, there is a great difference in the mine prices asked between the independents and association operators. From now on it looks as if the St. Louis market would be heavy only on Standard coal, if it is heavy on anything at all.

The mine price on Big Muddy came down last week to $5 for 2½-in. lump. Screenings are selling as low as $2.25@$2.50, with very few takers.

There is no anthracite arriving and no smokeless, and no demand for either. Arkansas coal is out of this market entirely. Retail prices the first of March were: Carterville, $8.25; Mt. Olive, $7@$7.25; Standard, $5.75@$6.

Dealers are having a hard time making contracts stick. All contract consumers seem to think that they have a perfect right to violate them and buy on the outside at any price they can. There is some talk of bringing test suits against dealers who are inducing contract customers to violate their agreements.

CLEVELAND

Retail Prices Break — Production Continues Low — Outlook for Steam Coal Brightens — Small Buying for Northwest.

Bituminous—The only rift in the clouds of the coal market has arisen from the prospects for a better market for screenings. This is expected to come from the fact that an oversupply of lump has developed. With the curtailment of production of lump coal, the supply of screenings is falling off considerably and comparatively few lots of this fuel remain on the market. Restricted industrial consumption, together with the fact that factories almost universally are still using up their stock piles, will prevent any rush of buying, however, and the best that can be hoped for is some stiffening of the market. Spot prices are quoted in the Weekly Review.

Although many mines are not producing, authorities in the trade declare that at present prices a number of those still operating are doing so at a loss. They have adopted this policy in order to keep mines open and in readiness for business when it does improve. Observers point out that prices for some grades are at bottom, in view of the existing wage scales which have 13 months to run.

Arrivals of bituminous coal at Cleveland during the week ended Feb. 26 reached a new low figure, namely: Industrial, 618 cars; !domestic, 273 cars; total, 891 cars; compared with 1,184 care the previous week.

Pocahontas and Anthracite—A drastic revision downward has taken place in the retail market for Pocahontas grades, the result of ample supplies, warm weather and the approach of spring.

Lake—Buying for shipment to the Northwest is lagging. The large holdover stocks at upper Lake points, industrial contraction and expectation of lower prices are all combining to hold buyers from the market. The season may be delayed, but it is expected that regular movements from the mine to lower ports will be under way to some extent by March 15.

Retail prices, delivered, are:

Anthracite—All grades, $14.50; Pocahontas—Shoveled lump, $11.40; mine run $10.30. Domestic Bituminous—West Virginia splint, $10; No. 8 Pittsburgh, $8.45; cannel lump, $12.15. Steam Coal—No. 6 and No. 8 slack, $6.60; No. 6 and No. 8 mine run, $7.50; No. 8 ¾-in. lump, $7.75.

CINCINNATI

Retail Trade Sluggish with Warm Weather—Spot Market Inactive.

Fulfillment of contract orders is practically all the business that is being transacted by wholesalers at the present time. Continued mild weather still retards the retail trade.

Regarding the future of the market for the fall trade, it is pointed out that everything hinges on just when the demands for coal in the Lake region are supplied. If this supply should be filled early this year, it will be an easy matter to get a plentiful supply of coal for the Cincinnati trade. But in the event that there is any delay due to rail conditions or other shipping trouble, the city may again be held up in the receiving of coal.

Bituminous lump at the mines was quoted $4.50 and nut and slack at $3. Smokeless lump brought $5.50 and mine run $4.

The following quotations are made by retail dealers; bituminous lump, $9.25@$10; mine run, $8.50@$9; smokeless lump and egg, $10.50@$11; mine run, $9.50; anthracite egg, $15@$16.25; domestic egg coke, $14.50@$16.

South

BIRMINGHAM

Market Continues Inactive—No Industrial Improvement—Requests for Railroad Fuel Bids.

The trade here is absolutely featureless and listless. There is virtually no sale for steam coal, consumers showing an utter indifference toward entering the market. With the general industrial depression consumers have sufficient stocks on hand to meet requirements in cases where operations are on a short-time basis or have contracts affording ample fuel for their current needs. As a general proposition all classes of contract consumers are taking as little coal as possible. Well-posted distributors are of the opinion that there will be little or no improvement within the next sixty to ninety days.

The receiver of the Atlanta, Birmingham & Atlantic R.R. has requested bids on fuel requirements for the next twelve or sixteen months. However, the request for bids is only an exercise of the authority under the receivership to abrogate any existing contracts provided more favorable ones can be executed, and is an effort to secure coal at a lower figure than is now being paid. They take approximately 20,000 tons per month from this field.

The almost total absence of any real winter weather this season has placed retailers in a hard row of stumps and the domestic demand is very light.

Quotations have fluctuated little of late and the principal producing interests have refrained from slashing prices below the line of a reasonable profit in an effort to stimulate trade and have met "no market" conditions by closing down mines or partially restricting output Prices are as follows per net ton mines

	Mine Run	Washed	Lump
Cahaba and Black Creek	$4 00@$4 50	$4.50@$5.00	$5.00@$6.00
Carbon Hill	3 25	3.50	4.25
Pratt	3.25@ 4 00	.....	.....
Big Seam	2.70@ 3.25	3.25@ 3.50	3.25@ 4.25
Corona	3.35@ 3.75	.....	6.00

Mine labor is plentiful and there is a surplus of both skilled and common workmen.

LOUISVILLE

Mild Weather Weakens Demand—Screenings Scarcer and Advancing—Consumption Is Light.

Light demand for prepared sizes as a result of mild weather is causing lower prices and smaller production. Higher prices for screenings have re-

sulted which is aiding in balancing the tonnage price of the mine.

Not a field of eastern Kentucky is quoting screenings under $2 this week, whereas they were quoted as low as $1.25 two weeks ago. On the other hand lump coal which sold at $4 and up is generally quoted at $3.75, and prices could probably be shaded under that figure. Mine run prices are remaining rather firm as a whole.

It is conceded by many operators that prospects are not good for an early revival of demand, although the Lakes trade should start early. However, with the present low industrial operation consumption is bound to be weak. Gas coal is in weaker demand than for a long time past, due to small operations of steel and metal-working plants, and lack of demand on the part of gas or byproduct plants.

Harlan and Straight Creek mine prices are firm. The Jellico field has a very fair Southern demand, and is quoting $3.85 for lump; $3 for mine run, and $1.95 for screenings. Hazard and Elkhorn prices are together at $3.75 for lump, $2.50 for mine run, $2@$2.10 for screenings.

Southwest

KANSAS CITY

Low Domestic Demand Creates Steam Call—Fuel Oil Cuts Into Coal Market.

A shortage of steam grades has developed in the Southwest due to the light production of domestic coal. Little activity is noted in other grades. No material changes in prices have been made for some time and operators state there can be no reduction until there is a like reduction in cost.

When fuel oil seeks a market coal cannot compete with it and fuel oil is now selling "on the open" at points like Wichita for 75c. a barrel. This is equal to $2.75 per ton for coal, delivered. Springlike weather continues and mine idleness, to say the least, has not grown any less.

West

DENVER

"No Market" Losses Severe—Lignite Prices Drop.

Lack of orders in both bituminous and lignite fields reached what is perhaps the low level for the winter during the week ended Feb. 19, when 109,331 tons were sacrificed because of "no market." The lack of activity represented an equivalent of fully 60,000 tons in bituminous, which, up to recent weeks, enjoyed a better general outlook than lignite.

Prices on bituminous, however, are holding up while the lignite sales have brought a decline, the latest being a 25c. cut on steam. The mine price dropped to $2.15 and retail is now $5.05. Louisville lump, after a 50c. cut made several weeks ago, is down to $5.25 at the mine and $9.25 retail, while Weld lump, after undergoing a similar cut, is $3.50 mine and $7.25 retail. Routt bituminous, despite several attempts to undercut the price, is generally holding at $6.50 in this and the southern Colorado fields, bringing $12.50 and $11.50 respectively in Denver. Bituminous steam is steady, $3@$3.50 at the mine and $6.25@$6.75 in retail lots.

Car distribution troubles, due principally to heavy snows on the Moffat road leading to the Routt County field, lessened production equivalent to 40,000 tons for the week ended Feb. 12, and 37,500 tons for the week ended Feb. 19, when actual production was 168,637 tons of a possible fulltime output of 268,861 tons.

Canada

TORONTO

Market Continues Inactive—Domestic Demand Light—Slight Improvement Indicated for Future.

The market remains very inactive. The weather generally continues unseasonably mild and dealers are well-stocked with anthracite, shipments from the mines coming forward promptly. Dealers note a slight improvement in bituminous, owing to the resumption of activity in some industrial lines and an increase in inquiries indicating a more active demand in the near future.

News From the Coal Fields

Northern Appalachian

UNIONTOWN

Further Tonnage Reductions—Railroads Increase Contract Offers—Spot Markets Are Extremely Sluggish.

A further cut in production was put into effect last week by the H. C. Frick Coke Co. Coke plants of the Steel Corporation's subsidiary are now operating at 60 per cent and coal plants at 65 per cent. The drop has been made in a two weeks' period, the corporation prior to that time having operated all plants virtually at capacity for several months. There is no indication that the Frick company has reached the low point of production. Each week sees a few more independent ovens added to the inactive list of the past few weeks.

The production status of the industry correctly reflects the market which is barely existing on the few spot orders being placed. It now appears that there is little possibility of any railroad fuel contracts being placed, mainly because of the price views of purchasing agents. The inquiries for railroad fuel, first having a firm figure at $2.50, now cover a range of $2.35@$2.60. Connellsville operators were not interested in the $2.50 bid and they are not showing a disposition to accept the $2.60 offer.

There is hardly sufficient tonnage moving to establish a market but some steam coal is being sold $1.60@$1.75, with other operators holding tonnage on track for $2. Byproduct is quoted $2.25@$2.75 with $2.50 as the figure at which most is sold. There is a minimum of spot coke in the market but here and there a car is sold for $4.50@$5. Foundry coke carries $5.50@$6 quotations but most sales are recorded at $5.75.

PITTSBURGH

Market Continues Stagnant — No Interest in Contracts—No Wage Developments.

There are scarcely even tentative negotiations on contracts for the coal year beginning April 1. Presumably sellers and buyers are far apart, although buyers do not seem to have expressed any definite views as to prices. As noted in previous reports, the Pittsburgh Coal Co.'s price on mine run steam is $3.25 and some large independent operators have stated their intention of adhering to prices of $3.50@$3.75, this being in the absence of actual negotiations.

As to the spot market, it is still very soft. Offerings are extremely light by comparison with the normal turnover in the market, but demand is lighter still. Practically the majority of sales are made at price concessions, due to one influence or another, much of the tonnage being demurrage coal. A few small operators, however, are evidently attempting to run on regular sales made in the spot market at such prices as are obtainable. The large operators all endeavor to restrict their output to contract requirements.

There is a distinct lack of definite developments as to wages. It has been said in some quarters for weeks past that the wage subject will be opened within a short time, on the basis that the scale signed to April 1, 1922, has become altogether out of line with general conditions, but no definite move is being made.

CONNELLSVILLE

Trade Marking Time — Consumption Decreases — Wage Reduction Expected.

There is no demand in the market except for small lots of foundry coke, and very light demand against contracts. While the total amount of furnace coke placed under contract for the

present half year was less than normal, actual shipments are far below this amount, simply because most of the furnaces involved are out of blast. Only one-fourth of the merchant blast furnaces in the Mahoning and Shenango Valleys are operating, and some of those now operating contemplate blowing out within the next few weeks. Merchant furnace operations in the country at large are only three-fourths as heavy as last September, and now many of the steel works furnaces are out. Coke production by the merchant ovens in the Connellsville region has been extremely light for weeks and now production by the furnace ovens, chiefly steel works interests, is decreasing from week to week.

Independent operators feel that there should be a heavy reduction in wages, but are indisposed to attempt to take action at this time, there being expectation that the H. C. Frick Coke Co., the Steel Corporation subsidiary, will revise wages in the coure of time, as part of a general wage reduction by the Steel Corporation.

The spot market is quotable at $4.50 for furnace and $5.50@$6.50 for foundry, according to grade, with asking prices on contract $5@$5.75 for furnace and $6.50 and upward for foundry.

The *Courier* reports production in the week ended Feb. 26 at 97,040 tons by the furnace ovens, a decrease of 16,870 tons, and 23,780 tons by the merchant ovens, an increase of 2,370 tons, making a total of 120,520 tons, a decrease of 14,500 tons from the preceding week.

EASTERN OHIO

Better Industrial Tone—No Improvement in Demand—Prices Firm—No Contract Interest.

While there has been some revival in general industry and the outlook is considered brighter than at any time during the past few months, production for the week ended Feb. 26 was less than that for any since the switchmen's strike during April, 1920. However, Washington's Birthday, resulting in a five-day week, contributed largely to this. Reports covering 170 mines indicate production of 224,000 tons, which is 44 per cent of a five-day potential capacity, or 37 per cent, based on a six-day week. Decrease in production compared with the previous week was 36,000 tons.

No improvement is discernible in the demand for steam coal. In exceptional cases prices have been shaded in spots in order to keep mines running. The opinion is expressed that present prices are so close to actual mining costs it is preferable to close the mines rather than lower prices any further.

Certain Canadian contract shipments which had been suspended temporarily have been resumed. A slight recovery is also reported in the domestic trade, no doubt caused by exhaustion of the hand-to-mouth supplies of householders and a slight recession of retail prices. There is as yet no indication on the part of industrial consumers to negotiate for new contracts.

Spot mine prices are about as follows:

Slack	$1.75@$2.00
Mine run	2.00@ 2.25
¾-in. lump	2.75@ 2.90
1¼-in. lump	3.00@ 3.25
Domestic lump	3.25@ 4.00

CENTRAL PENNSYLVANIA

February Production Low—Operations Further Curtailed.

Production for the month of February offers but little of an encouraging nature of a return to normal conditions. Records show a total of 56,300 cars loaded or approximately 3,000,000 tons. The January record was 67,037 cars and for December, 1920, 94,018 cars, while the output for February, 1920, was 3,635,195 tons.

Producers say they are making little or nothing and that their only object in operating at all is to keep their organizations together. Many of the mines are working but half-time and with those closed production is down to about 40 per cent of normal. Many complaints are heard from operators relative to the high freight rates now prevailing. It costs from $3 to $4 a ton to ship to the Eastern consumer, and makes the cost too high. This hurts the manufacturing industry and reflects back to the coal fields.

FAIRMONT AND PANHANDLE

Slight Awakening of Buying Interest—Spot Sales Are Few—Production Maintained.

Fairmont

Aside from slightly increased Tidewater shipments there was little change in the situation during the week ended Feb. 26. The nature of inquiries made by buyers indicated that they expected to contract for coal at prevailing prices and practically no business has been done to date. Curtailment of operations continues as there is no spot demand to speak of. The prices offered by buyers were too low to receive recognition, ranging $1.75@$2.50. Offers of railroad contracts at $2.40@ $2.50 were generally opposed by producers.

Northern Panhandle

There was no hardening of prices nor any appreciable growth in production as a result of slightly increased sales, the coal sold evidently having been taken out of storage piles. Although less than a month away, no new contracts have been closed so far as could be learned.

Middle West

MIDWEST REVIEW

Trading Is Quiet—Screenings Stronger—Credits in Northwest in Bad Shape—Contract Inquiries Increase.

There appears to be a slight resumption of industrial activity in the Middle West and this, to some mild extent, has strengthened the market on steam coals, but the main factor in the improved condition is the fact that operators are having a great deal of trouble in moving their domestic sizes and consequently are unable to produce the steam coal required. This is perhaps putting it a little strong, because there is more than enough steam coal to go around. It would perhaps be better to say that the market is no longer flooded with cheap screenings and that those who have screenings for sale are getting better prices.

If for any given reason it becomes necessary during the next sixty days for the mines of this country to produce their maximum tonnage it would find the railways woefully unprepared. An executive official of one of the largest railways serving this territory told us that they were making no repairs whatsoever and had closed all of their repair shops. When asked why, he replied that labor was getting so much money that his road was forced to take this step as a saving precaution, especially in view of the fact that the returns had been shrinking materially since November, and that the road anticipated that later on wages would be more reasonable, as soon as the general public understood the situation. Equipment on his line is in pretty bad shape, but as there is practically no traffic, they are retiring for the time being their bad-order equipment and letting it stand on side-tracks until such a time as they will have a chance to repair it at a reasonable cost.

In the Northwest the situation continues in the doldrums. A sales agency covering that part of the country reports that it will no longer take checks from its customers, as in a number of cases, checks had been received from customers whose accounts were good, but were drawn on banks in the Northwest which failed before the agency had a chance to cash them. In a great many cases, shippers are insisting that coal shipped into that territory be paid for with money orders, or cash.

Those purchasing coal are sending letters broadcast requesting contract quotations but we have not heard of any case of contracts being closed for a substantial tonnage, although some small contracts have been signed. Those who are in a position to know what they are talking about, do not predict any material improvement in the near future in the coal industry. They do, however, believe that by July the demand for coal will be up to normal and by October and later on, the call will be very strong and market conditions good.

SOUTHERN ILLINOIS

Mine Idleness Is General—Prices Pared Down—Railroad Tonnage Diminishes.

The Standard field situation is an aggravated one. With the mildest winter on record some mines have been idle now for many weeks and in many places miners are actually in want. Commercial mines work one and two days a week as a rule. Mines with railroad contracts sometimes get as many as four and five days.

The bulk of this coal is going into

St. Louis, and prices are not as a rule above the cost of production. Domestic demand is easing, and operators are trying to find an outlet for their fuel in other steam markets.

Two days a week seems to be about the average working time at the commercial mines throughout the Mt. Olive district. In Mt. Olive and Standard over 800 acres of coal were left unbilled Feb. 28.

The prospects are that the working time will get down to one day a week at many commercial mines. Price for St. Louis shipment on domestic sizes is $3; country shipments range $3.25@$3.50, with most of the steam going on contract.

In the Carterville field of Williamson and Franklin Counties the situation is far from satisfactory, and is generally accounted for by the unusually mild weather. Working time ranges down to one day a week.

Railroad contracts have helped out wonderfully, but this tonnage is beginning to diminish on account of roads using up their storage coal. Some mines are idle an entire week at a time, on account of inability to move all sizes. Several operations are putting steam sizes on the ground, figuring that spring and summer buying of domestic is going to be slow and that steam coal will be in good demand.

Independent mines are getting anywhere from $3@$3.50 for domestic sizes, $2.50@$2.75 for mine run and $1.75@$2 for screenings. These prices are about the same as are being secured in the Duquoin field.

WESTERN KENTUCKY

Steam Demand Only Fair—Market Generally Draggy and Operations Very Light.

Operators are not pessimistic over the present situation, as it is believed that following a short period of dullness there will be a very fair demand from the North and Northwest, where western Kentucky mines have developed markets.

It is realized that during the period of shortage it was possible to sell coal in markets where freight rates were against the operators. However, the West Kentucky Coal Bureau is working steadily on getting adjustments in rates to Michigan, Arkansas, South Atlantic points and elsewhere, where there is a good demand for fuel.

Demand for lump is expected to be good enough after a few weeks, and the principal question is in developing outlets for steam coal, especially screenings. With demand for eastern Kentucky lump slumping and screenings becoming scarce as a result, it is believed that there will soon be a readier market for western Kentucky screenings.

Principal quotations made this week are quoted in the Weekly Review. Average for the field last week showed lump, $3.40—range, $3@$4; mine run, $2.60—range, $2.25@$3; screenings, $1.75—range, $1.40@$2.50.

Middle Appalachian

LOW-VOLATILE FIELDS

No Improvement in Market Conditions —Spot Trading Extremely Light—Few Contract Negotiations.

New River and the Gulf

Gulf operations were confined to about two days during the week ended Feb. 26. There was really no improvement in market or operating conditions. It was simply a question of having or not having contract orders. Standing orders were diminishing and accounted for the 33 per cent production in the region as a whole. Operators seem resigned to their fate in the hope the business would pick up after the opening of the new coal year.

Production in the New River region was just about on a par with the preceding week. Scarcely any tonnage except distress coal was being disposed of in the open market. Shipping of coal on consignment was curtailed both by the action taken by railroads and through the pinching administered to those who had been called upon to let their coal go for a song.

Pocahontas and Tug River

Mines in the Pocahontas region were only producing 40 per cent or less. The output was slightly under 200,000 tons with losses running over 300,000 tons. The market appeared to have settled down somewhat and there was a feeling of optimism among operators that the present basis of conditions will facilitate an early recovery. Very little had been done toward closing new contracts.

Although there was a slight increase in Tug River production, the output reaching 57,350 tons, yet the slightly heavier loadings meant very little by way of improvement in general conditions. Much less coal was being absorbed by the railroads.

HIGH-VOLATILE FIELDS

Operations Confined to Contracts — Sluggish Trade Reflected in Mine Idleness—No Spot Market.

Kanawha

Maximum production on any one day was not in excess of 13,000 tons, dwindling to 9,000 tons at the close of the week ended Feb. 26. Warm weather and industrial inactivity precluded any recovery from the slump in demand. The only mines still in operation were those with contract holdings, while curtailment of contract shipments was still in order to some little extent.

But little contracting was being done. Tidewater and Inland markets were equally dull, the volume forwarded on consignment was steadily diminishing.

Logan and Thacker

Logan loadings were slightly larger than during the previous week, climbing up to about 140,000 tons due to the temporary need of regular customers for larger tonnages. Certainly the increase was not due to a heavier spot demand which if anything, was even lighter than heretofore. One grade was in as little call as another. Mines in general were not operated more than two days at the most.

There was a rather perceptible decline in the Thacker region, 50 per cent of capacity being the average worktime. Contracts had undergone a very pronounced curtailment, yet few mines, in view of such conditions were shut down entirely.

Northeastern Kentucky

February ended with a slight improvement in production, regarded, however, as being of a temporary nature. The output reached 51,000 tons or 25 per cent of potential capacity, mainly due to "no markets." The increase in demand was not reflected at the mines except as to prepared sizes.

Virginia

Mines were managing to hold on to contract business although production was gradually diminishing, being close to 50 per cent. But little coal was being mined except on a contract basis.

Southern Appalachian

SOUTHEASTERN KENTUCKY

Markets Continue Dull — New Lake Rate Established—Operating and Traffic Conditions Good.

But few inquiries are coming in from consumers. In order to sell coal now it is necessary to hunt out the buyers and offer them the best coal in the field at a very low price. The near end of the winter has put the domestic coals on the market in large quantities and prices are steadily falling. However, this is having the effect of forcing the price of steam coal upward, as it is impossible for the mines to operate on $1.50 nut and slack unless they can get as much as $4.50 for block.

Quotations run $4@$4.50 for block, $3 for mine run and $3.25@$3.50 for gas-producing egg. The L. & N. R.R. has voluntarily re-established the competitive Lakes rate from this field, which means a great deal to the operators.

West

UTAH

Mine Idleness Growing — All Demands Are Weaker.

Mines are working 45 per cent of capacity and leading producers see no immediate improvement. Many industrial plants are working part-time or have closed down entirely, while the Coast trade is not good. Colder temperatures have abated and the domestic demand is inactive.

Operating conditions are ideal, as cars are plentiful and labor is working at topmost efficiency.

MINE And COMPANY NEWS

ALABAMA

The Alabama Supreme Court has overruled a motion for a rehearing in unlawful detainer cases brought by union miners in the Alabama fields in the lower courts and appealed to the Supreme Court, which recently affirmed the decisions in the circuit courts sustaining the right of operators to eject strikers from their houses under the provisions of the house leases which terminated the right of the striking employees to occupy such houses at the expiration of twenty-four hours' notice to vacate the premises. Striking miners are now vacating houses throughout the district and taking up their abode in tents provided by the United Mine Workers.

Car No. 5, of the United States Bureau of Mines, with headquarters at Butte, Montana, is in the Birmingham District, and will make a tour of the coal fields of Alabama and give instructions to mine workers in mine rescue and first aid work. This is an all-steel railroad car eighty-three feet in length and weighs eighty-five tons, being one of eleven similar cars now in use in the coal fields of the states. The car will remain in the district several months.

ALASKA

Shipments to be made to Alaska this year by the Alaskan Engineering Commission will include machinery for washing coal produced on the Matanuska branch of the government railroad in the North. The coal washing plant will be erected near the Eska coal mine, which is located about 60 miles north of Anchorage. It will be used in cleaning Alaska coal for railroad and local consumption.

COLORADO

Members of the Colorado legislature were given the producers' viewpoint of the cost of mining and shipping coal, at a dinner given by the **Colorado-New Mexico Coal Operators' Association** recently in Denver. The gathering, while not directly leading to the discussion of proposed coal legislation, was supposed to give the operators' side of the situation. Fred Farrar, former attorney general of Colorado, now general counsel for the Colorado Fuel & Iron Co., said the company's wage bill for 1920 was about $8,957,000 or an average of $2.158 per ton. The company produced about one-third of the 12,000,000 tons mined. Gross returns to the company averaged per ton of coal $3.427 on which the average net profit was $0.244 per ton. In 1919, he said, the company lost $0.078 a ton, and in 1918, it made a profit of $0.099 a ton.

David W. Brown, president of the Rocky Mountain Fuel Co. and head of the association, presided at the dinner meeting, which was well attended.

Three men were instantly killed and two others are missing and a sixth had a narrow escape from death as the result of an explosion in the M. & P. slopes of Mine No. 2, located a mile and a half west of Oak Creek, owned and operated by the **Moffat Coal Co.** of which S. M. Perry of Denver, is the president.

Recent surveys for branch lines of the Denver & Rio Grande R.R. hold the prospect of **opening up a new anthracite field** near Somerset. The only Colorado anthracite field now served by railroad is the Crested Butte territory. The proposal, as considered by railroad officials, is said to include a proposed line from Somerset to the Glenwood Springs branch of the main line, a distance of thirty-five miles, standard gage, and a twenty-three mile standard gage line to replace the narrow gage line from Crested Butte to join the Glenwood Springs branch.

ILLINOIS

From present indications Franklin County is to have a new coal mine located at Mulkytown near the line between Six Mile and Tyrone Township. A new company is being formed to take over four sections of coal land from **C. H. Pope** of Herrin, lying between that village and Little Muddy River.

Two men are dead and a third is expected to die from the result of an explosion in Mine No. 8 of the **O'Gara Coal Co.,** at Eldorado. The explosion was caused by gas being ignited in a room in which the three men were working. The mine was in full operation at the time of the accident and over four hundred men escaped accident. The mine is about four hundred feet under the surface and is subject to more or less gas.

The Consolidated Coal Co., of St. Louis, has recently let contracts for the construction of a $500,000 electric power plant to be built at Mine 15 near Mount Olive. The plant will furnish power for several of the company's mines in that vicinity. A new steel tipple which will cost in the neighborhood of $50,000 is also an improvement which is now being planned for the mine. The new power plant will be equipped with four 600 hp. boilers and three turbine engines to be connected directly with large generators.

After a shut down which lasted over two and one-half months, the mine of the **Assumption Coal & Mining Co.,** at Assumption has been re-opened. The mine is one of the deepest in the vicinity.

Seven men have been given up for lost in the fire which was discovered in the Kathleen mine of the **Union Colliery Co.** at Dowell, six miles south of Duquoin. The mine is controlled by the Union Electric Light and Power Co. of St. Louis.

Three shot-firers are believed to have been killed by an explosion in Mine No. 5 of the **Centralia Coal Co.,** two miles south of Centralia, which wrecked the northeastern section of the mine. The body of Harry Warren was recovered.

A new company known as the **Newcastle Coal Co.,** of Edwardsville, has been formed and will re-open and operate the Henrietta mine, in Madison County, which has been idle for the last eighteen months. Work has been started on cleaning up the mine preparatory to operation and pumps have been set to draw out the water.

On account of the depression of the coal market for the last six weeks, the **Aladdin Coal Co.,** has shut down its No. 3 mine near Tamaroa. The company owns a number of mines in Perry County, and finds it difficult at this time to keep orders ahead to keep all of them running full time.

Mine No. 7 of the **Peabody Coal Co.,** located at Kincaid, recently broke its hoisting record when 4,705 tons of coal were hoisted in 8 hours time. A total of 1,411 dumps were necessary to hoist this large amount of coal. The last record of the company was made in March, 1920.

INDIANA

The McLaughlin-Young Coal Co. has been incorporated, following the purchase of a tract of coal land near Linton, where strip-mining operations will be conducted.

An order to pay the former employees of the **Shelby Coal Co.,** Terre Haute, wages totalling about $6,500, which were due them when the company went into the hands of a receiver, was approved by Judge Gleason in Superior Court No. 2 recently. Claims had been made by 40 or 50 men who were in the employ of the company and the court said that they would receive nearly the full amount due them.

Values are falling pretty fast when a coal mine can be bought for $10, but a deal for this amount was made at Brazil, Feb. 11. Thomas McGuire, who has been conducting a stripping mine north of the city for the past year or more, sold his mining property to **Hutson Bros.** for a ten dollar bill. The mine has produced a large quantity of good block coal. Slack orders and trouble with water in the pit caused McGuire to forsake the role of coal operator.

A company has been formed to operate the **Bellevue coal mine** in the Carlisle section. Operations were discontinued several years ago. About 200 men will be employed at the present time.

The C. R. Cummins Coal & Mining Co. of Ohio filed papers with the Secretary of State of Indiana, to qualify to do business in Indiana. The total of $1,500,000 of the company's capital stock is held by Indiana people. J. P. Watson of Oakland City is named as the Indiana agent.

Just before the property listed as delinquent in Sullivan County was put on sale recently by County Treasurer Ed P. Snow, the **Indiana Coal Co.** gave the county treasurer a check for $9,000 in payment of its alleged delinquent taxes, and the coal property was not offered for sale.

A petition asking that the name of the **Ferguson-Spears Coal Co.** be changed to that of the **Ferguson Coal Co.** was filed in the Circuit Court at Terre Haute recently.

The J. Woolley Coal Co., of Evansville, has moved a drilling outfit to Carlisle, preparatory to re-working the old Bellevue mine, three miles south of that city. The mine was operated by the Bellevue Coal Co. about ten years ago. The coal is of good quality, but the price paid then was only 85c. per ton and it was abandoned. It will be several months before operations can begin.

KENTUCKY

In spite of dull conditions in the fields several new coal companies have been chartered recently. Among this list were: **Hombre Coal Co.,** Hombre, increased capital from $55,000 to $100,000. **Bailey-Ferguson Coal Co.,** Prestonburg, $200,000, Marie Bailey, James G. Bailey and S. C. Ferguson. **Campbell Block Coal Co.,** Hazard, $50,000, J. G. Campbell, E. L. Campbell and R. H. Holliday.

MINNESOTA

Committees of investigation of the dock coal situation have been named from the House and Senate of the Minnesota Legislature, and are expected to work jointly with a similar committee from the Wisconsin Legislature. The coal trade views this step with amused boredom. Almost every legislature goes through something of the kind, and the net result is nothing. Whatever may be assumed to be wrong with the coal business, it is certain that the source of trouble is not in Minnesota nor Wisconsin and cannot be reached by a committee from the legislatures of either of the states.

OHIO

The Progress Coal Co., recently chartered at Columbus with a capital of $100,000 has taken over a mine near Nelsonville which was formerly operated by the Ohio Consolidated Coal Co. The property consists of 200 acres and has a rather modern plant. The product will be sold through the Ohio Consolidated Coal Co. Incorporators are H. H. Palmer, C. Baker, R. C. Kyle, S. E. Ranney and E. E. Learned.

The Crab Orchard Mining Co., which recently secured a lease on a tract of 240 acres of land in the southwest corner of Harrison County will soon start the erection of a modern plant, including a power unit of 100 kw. One seam is now being worked by hand. With the completion of the plant about April 1 it is planned to work the second seam from the top also. The seams are known as No. 6, No. 6A and No. 7.

A number of new operating concerns have been chartered in Ohio recently, which shows a renewed interest in development work, despite the slump in the trade. Among the number are: **St. Clairsville Coal Co.,** of St. Clairsville, capital, $30,000, A. W. Kennon, A. E. Host, T. H. Gaston, N. K. Kennon and E. N. Boggs. **Mapleton Land & Coal Co.,** Canton, capital, $5,000, A. N. Wade, A. M. Seebach, A. F. Wade, E. V. Crowe and T. B. Wade. **Forest City Coal Co.,** Cleveland, capital, $50,000, Fred F. Klingman, Milton C. Portman, Perry L. Graham, C. C. Townes and M. B. Bernage. **Klein, & Moore Coal Co.,** New Philadephia,

capital, $50,000, C. W. Klein, Gladys Klein, James B. Moore, C. J. Moore and R. G. Moore. **Honest Coal Co.**, Akron, capital, $10,000, J. W. McCoy, J. T. McCoy, V. R. McCoy, George Heincke and E. V. Maguire.

Organization of the newly incorporated **Bruner Coal Mining Co.** was perfected at a meeting held in Springfield. P. H. Bruner was elected president and general manager; Edward Schuler, vice-president, and Homer Cramrine, secretary and treasurer.

Effective Feb. 8, the name of the **Massillon-Belmont Coal Co,** McClymonds Bldg., Massillon, was changed to **The New Pocock Coal Co.**, and the following officers announced: Wm. F. Kutz, president-treasurer and general manager; Jas. E. Willison, secretary; Wm. Penman, first vice-president, and J. C. Haring, second vice-president. This company operates Bethel mine at Flushing in Belmont County, as well as other mines at Cambridge, Uhrichsville and Massillon.

The Ten X mine of the **Western Fuel Co.**, located near Orbison, which was flooded early in January has been put into operation, as the water has been pumped out. The mine was flooded by water breaking into it from the Pittsburgh Coal Co.'s mine which adjoins it on the north.

The annual stockholders meeting of the **Lorain Coal & Dock Co.**, was held recently. The board of directors elected at the meeting consists of Edward Johnson, F. W. Braggins, R. L. Windermuth, J. L. Johnson, E. M. Saunders of St. Paul; M. V. Seymour of St. Paul; C. R. Saunders of Cleveland and G. C. Miller, New York. No change was made in the list of officers who are: Edward Johnson, chairman of the board of directors; F. W. Braggins, president; R. L. Windermuth, vice president and general manager; J. L. Johnson, second vice president; Ray L. Phelps, secretary and treasurer and W. M. Amos, assistant secretary and treasurer.

PENNSYLVANIA

Production of coal during 1920 in the **Eighth Anthracite District** reached 3,230,363 tons, but this was more than one million tons below the production in 1919. The report shows that the several general strikes called by the Pennsylvania Coal Co. completely tied up the Pittston district. Out of the 8,743 men employed by the various companies, there were only 31 victims of fatal accidents. The non-fatal accidents numbered 36. The production by companies and collieries follows:

Pennsylvania Coal Co.—	
Ewen	522,661
No. 9	586,320
No. 14	609,501
No. 6	462,341
Barnum	130,427
Hillside Coal & Iron Co.	648,449
Hudson Coal Co.	235,545
Hudson Coal Co. washery	6,898
Quin Coal Company	26,313

Charles W. Watkins, of Dorranceton, had signed contracts for the total use of his patented automatic mine-stops and railway brake to the **Hudson Coal Co., Delaware and Hudson Co.**, and the **Northern Coal & Iron Co.** He also signed agreement for use of his patented car-stop, car-holding ratchet for mine carhauls and cut-out switch for safety and efficiency with telephone service in mining to the **D. L. & W. R.R. Co.** and the **D. L. & W. Coal Co.**, and all departments.

The first report of the **Thirteenth Bituminous district**, which includes largely mines in Cambria County and which was established on June 1, 1920, has just been filed with the State Bureau of Mines and shows a big production for the period beginning June 1. The new district includes mines along the Cresson and Irvona railroad, Flinton, Fallen Timber and points in southern Clearfield County. Several large new operations are being opened. There are 98 mines, of which 94 were in operation and the total output for the period was 4,449,382 tons. There are 99 coke ovens in the district and the mines employ 5,968 men.

Total production in the **Twentieth Bituminous district** in 1920 was 5,562,265 tons. This was an increase of 178,385 tons over 1919. There were 22 new mines opened in the district during the year, bringing the total to 138, of which 134 were in operation during the year. These mines employed a total of 7,294 men, inside and out. The Twentieth district embraces mines in the rich fields of Somerset County and includes such big operations as the Consolidation Coal Co., which alone produced 1,350,677 tons, the Hillman Coal and Coke Co., The Quemahoning Coal Co. and others.

The West Bethlehem Coal & Coke Co. has been incorporated for $1,250,000 under the laws of the State of Delaware. Incorporators are: Wilbur A. McCoy, Pittsburgh, W. J. N. Lofland and T. Frank Jackson, of Dover.

A decrease in coal production of almost 250,000 tons in the **Twenty-fourth Anthracite inspection district** is shown in the annual report. Anthracite produced in 1920 totaled 2,510,165 tons, as compared with 2,759,719 in 1919. The district comprises thirteen collieries. Most of the fall-off in production is attributed to the unauthorized walkout of miners last September. Fatal accidents in 1920 were twenty-one, against twenty-three in 1919.

A low accident record was established last year in the **Tenth Anthracite district**, according to the 1920 report. There were only 15 fatal accidents among the 5,641 mine workers employed in the twelve collieries of the district. Production showed that during the year there were 211,000 tons mined to each fatal accident. The year was one of the best in the history of the district. Total production was 3,165,033 tons, an increase of more than 200,000 tons over 1919. Production by companies was as follows:

Hudson Coal Co.	1,011,051
Lehigh Valley Coal Co.	695,359
D., L. & W. Coal Co.	578,198
Haddock Coal Co.	170,637
East Boston Coal Co.	164,115
Traders Coal Co.	154,059
Wilkes-Barre Colliery Co.	141,219
Raub Coal Co.	87,499
Central Coal Co.	67,027
Conlon Coal Co.	66,009
Healey Coal Co.	29,860
Total	3,165,033

There was a decrease in the production of coal in the **Fifth Anthracite district** during the year 1920. This was due, to the fires raging in the Central and Continental workings and the water in the Sloan. The total output for all purposes was 2,353,740. In order to mine the vast amount of coal the services of 4,855 men and boys were required. There were twenty-three fatal accidents in the district, and fifty non-fatal.

TENNESSEE

The Federal Coal Co., of Chattanooga, has been added to the list of concerns engaging in the coal export business through Charleston. It is possible that the Federal Coal Co. may ship additional cargoes through Charleston, but no definite statement as to the future program is available.

UTAH

The Cameron Coal Co., Salt Lake City, has filed a protest against paying upon a valuation of $120 an acre for its land. The company claims that about 60 per cent of it is worked out, with no coal remaining.

The Standard Coal Co., Salt Lake City, has filed its annual returns with the state authorities showing real estate and improvements in Carbon County valued at $340,301.44. **The "National"** shows property in Carbon County to be worth $44,566.

WEST VIRGINIA

The Standard Tide & Inland Coal Sales Co. of which Geo. H. Ewald of Charleston is president and general manager and which was recently chartered with a capitalization of $50,000 expects to handle smokeless splint, gas and by-product coals and also eastern Kentucky coals.

Purchase of 975 acres of Sewickley coal in Cass District of Monongalia County on the east side of Dunkard Ridge has been consummated by **Frank Shriver** and the **Purseglove Coal Mining Co.**, the mining company paying for its share of the acreage purchased, the sum of $100,000. The acreage purchased by the Purseglove Coal Mining Co. is in close proximity to the coal property now under development by that company and the Morgantown & Cleveland Coal Co., owned by the Purseglove interests. This land was secured for development purposes and will be developed along with other properties of Scotts Run and Robinson's Run in Monongalia County.

Charles A. Winchester and others of Charleston have formed the **Duffield-Winchester Coal Co.** which will operate in the Kanawha field, this company having a capital stock of $25,000. Associated with Mr. Winchester in the new company are: W. E. R. Byrne, John H. Linn, J. C. Given and E. S. Bock.

Four tracts of coal land aggregating 70 acres of land have been sold by the Hue Coal Co. to the **Reed Run Coal Co.** This coal is in Morgantown district of Monongalia County and is in the Freeport vein. The consideration is $20,925.

As against a potential capacity of 21,538,238 tons, only 9,550,547 tons of coal were produced in the Logan region in 1920. Railroad disability and car shortage caused the loss.

Many West Virginia operators are hard pressed financially because they cannot collect for shipments made to the railroads during the latter part of 1920. The railroads are without funds to meet their fuel bills owing to the heavy drains made by high operating expenses. While it is of course impossible to even approximate the amount due operators, yet some idea of the accounts remaining unsettled may be conveyed when it is said that there is due one company alone by an Eastern railroad for coal shipped last November, the sum of between $60,000 and $70,000. A large New York concern which has mines and connections in West Virginia has been unable to collect more than half a million dollars due it by several of the biggest roads in the country for fuel shipped many months ago.

Clarksburg capitalists are behind the newly organized **Elk Hill Fuel Co.** of Clarksburg which is capitalized at $50,000. The company will operate in Elk district of Harrison County. Conspicuous in effecting a preliminary organization of the company were: Dudley D. Britt, Lynn S. Hornor, Benjamin R. Britt, Louis A. Johnson and Leo P. Caulfield of Clarksburg, W. Va.

Although Detroit is to be the general headquarters of the **Seminole Gas Coal Co.**, which is a West Virginia corporation just organized with the capital stock of $150,000, operations of the company will be in Harrison County. Leading figures in the new company are Edward H. Jewett, Walter Brooks, John D. McKay, of Detroit; Louis H. Stone and Edward L. Douglas, Cincinnati, Ohio.

A number of West Virginia companies have recently increased their capital stock. In that list are: the **Old Dominion Coal Co.**, Charleston, headed by W. R. J. Zimmerman, from $100,000 to $300,000; **Easley Coal Co.**, of Huntington; Fred Easley, president, from $75,000 to $300,000; **Cap Run Coal Co.** of Charleston, H. C. Jones, president, from $100,000 to $200,000; **Low Volatile Collieries Co.**, Keyser, to $100,000; **Fairmont-Lowesville Coal Co.**, John Y. Hite, president, from $100,000 to $300,000; **Paint Creek Coal Mining Co.**, Cleveland, Ohio, organized as a West Virginia corporation, H. M. Hanna, Jr., president, from $500,000 to $1,000,000; **Jones-Winifrede Coal Co.**, Charleston, H. C. Jones, president, from $5,000 to $125,000; **Barnard Coal Co.**, W. O. Barnard, president, from $75,000 to $150,000.

Production has been begun at the recently completed plant of the **Monticello Coal Co.** at Hendon, Frank Lee being the president of the new company. This company owns a large tract of land and expects to be able eventually to produce coal at the rate of 1,000 tons a day.

Harrison County coal land to the amount of 135 acres has been sold by Thomas Love and W. A. Furlong to the **Thomas Love Coal Co.** for the sum of $216,000.

Coal land in Logan County will, by the **Parsons Coal Co.** of Huntington, be shortly incorporated with a $3,000,000 capital by A. F. Parsons, Frank H. Adams and E. I. Forbes, it was announced today.

Pennsylvania and West Virginia capitalists will be investing in a $3,000,000 company to be organized for the development of coal land in this state. The **Savaria Coal Co.** has been incorporated for the undertaking, the corporators being Alexander Baba, of Fayette City, Pa.; Louis A. Johnson and C. E. Tucker, of Clarksburg, W. Va.

WYOMING

Producers and retailers would be required to make frequent reports to the Wyoming Public Service Commission, giving prices, costs and profits, if the proposed legislation recommended by a special senate committee appointed to investigate alleged "practices of profiteering" is enacted into law by the legislature. In case the commission found prices excessive it would have power to bring suit against the companies and attempt to force a reduction in prices.

Personals

Carl E. Wendell, recently with the American Ore Reclamation Co. has joined the General Briquetting Co., New York City, as consulting engineer.

H. D. Pallister on March 1, became Professor of Mining at the Alabama School of Mines of the University of Alabama at Tuscaloosa.

Vernon B. Bickman has become associated with the Coalmont Moshannon Coal Co., Philadelphia, as sales manager. He was formerly in charge of the coal department of the National Sales & Trading Co. **E. E. Hackman** also comes from the latter firm as assistant to Mr. Bickman.

W. W. Odell has been selected to take immediate charge of the lignite investigation which is being conducted by the Bureau of Mines. The bureau is preparing to conduct experiments with North Dakota lignite. Mr. Odell, who has been doing coal gas work at the Urbana (Ill.) Station of the Bureau of Mines, is experienced in this type of work. He has been with the Bureau of Mines since 1917.

C. H. Mead, head of the Mead-Toliver Coal Co., with headquarters at Beckley, who is in Florida recuperating from a threatened break-down, has received word that Mrs. Mead has had to go to New York for an operation and that his son, Sabine is ill at Woodbury school.

A visitor in the Fairmont region during the second week of February was **F. J. Roye,** a coal operator of Brownsville, Pa.

C. A. Cabell, of Charleston, W. Va., general manager of the Carbon Fuel Co. which operates on Cabin Creek, has been seriously ill at his Charleston home.

J. J. Ross, general manager of the Logan Mining Co. with headquarters at Logan, W. Va., was a visitor in Charleston, during the second week of February.

C. V. Critchfield, of Cleveland, Ohio, vice-president of the Domestic Coke Corporation of Fairmont, was in the Fairmont region about Feb. 10.

H. R. Rich, Fairmon district representative of A. W. Marshall & Co., was in the New York market about the middle of last month.

John Hart of Charleston, W. Va., head of the Hartland Collieries Co., was out of town on business during the latter part of the second week of February.

L. A. Hall, general manager of the Coal Company of Fulton County, Gloversville, N. Y., was one of the many coal men who circulated among the wholesale offices in New York City recently in an effort to get a line on general conditions. Mr. Hall reports demand for the domestic coals quiet in Gloversville with plenty of coal on hand to meet requirements.

Wm. E. Rice of C. M. Moderwell & Co., Chicago, has joined the forces of the Hedstrom-Schenck Coal Co., also of Chicago, as city salesman.

F. W. Stevenson, formerly representative in Nebraska, for the Central Coal & Coke Co., has been appointed to take charge of the new office recently opened up in Minneapolis, by the Bell & Zoller Coal Co. of Chicago.

Geo. S. Brackett, new secretary of the Northern West Virginia Coal Operators' Association, Fairmont, W. Va., was a visitor in the eastern Ohio field recently.

George B. Hadesty, of the Philadelphia & Reading Coal & Iron Co. has been appointed general manager of the company, a position that has been vacant since Richards was elected president. The two men started out together as members of an engineering corps in Ashland in 1883, and have been closely allied ever since in working for the Philadelphia & Reading and the Lehigh & Wilkes-Barre Coal Co.

Traffic News

In the complaint of the **Rockford Lumber and Fuel Co.,** the commission decides that the reconsignment rule providing charges for diversion or reconsignment to points within switching limits before placement, heretofore approved in the Reconsignment Case are affirmed, and dismisses the complaint.

In the complaint of the **Reeves Coal & Dock Co.** an I. C. C. examiner recommends that the claim for reparation because of collection of certain demurrage charges for detention of a car of coal at Minneapolis be dismissed because the detention was caused by the complainant.

The Atlantic, Gulf & Pacific Steamship Co. has announced a reduction from $12 to $10 per ton on coal and coke from Mobile to Pacific Coast points. Normally there is a good movement of coke from this district to California and other Pacific Coast points.

The Montana R.R. Co. has asked authority of the I. C. C. to operate a railroad extending from Montana, Johnson Co., Ark., to the Johnson & King Coal Co.'s mine, the line extending through a coal region.

In the case of the **West Kentucky Coal Bureau** an I. C. C. examiner in a tentative report recommends that the rates on coal from western Kentucky to points in southeastern Missouri and northeastern Arkansas, via Thebes, Ill., be declared unreasonable because they exceed rates 33.5c. per ton greater than those applicable from southern Illinois; and via Memphis, Tenn., because they exceed rates based on the same scale as applicable from southern Illinois via Thebes to destination territory named.

The Harleigh Brookwood Co., of Philadelphia and Mahanoy Plane, Pa., in complaints to the I. C. C., attacks unreasonable rates on unprepared anthracite coal from Stanton Bank to the Lawrence Colliery; from Raven Run Banks to the same colliery; from Raven Run Banks to Kehley Run Colliery; between Lawrence Bank and Mahanoy Plane, Pa., from Harleigh to Hazle Brook, Pa., from June 25, 1917, to August 26, 1918, and asks for reparation for excessive rates during that period.

The Dewey Portland Cement Co., in a complaint attacks unreasonable rates on slack coal during Federal control from mines near Broken Arrow, Dawson, and other Oklahoma points, which it says were lower than rates from mines in the Pittsburg, Kan., groups to Dewey and Bartlesville and to Kansas cement mills.

The Driscoll Coal & Wood Co., of Pueblo, Colo., attacks unreasonable rates on lump, egg, run of mine, blacksmiths, nut, slack and pea coal from the Walsenburg and Trinidad districts to Pueblo on shipments after June 25, 1918.

The Reeves Coal and Dock Co., of Minneapolis, complains against unreasonable rates on coal from Hillsboro, Ill., to Elroy, Wis.

The case the **Utah Public Utilities Commission** has had before the I. C. C. for the past six months regarding an increase of 25 per cent in intrastate rates on coal and ore to correspond with the blanket increases granted on interstate rates has been decided in favor of the Utah commission.

The Kentucky & Tennessee Ry. has asked the I. C. C. for authority to construct and operate an extension of its line in McCreary County, Ky., for a distance of 2½ miles, which it is said will provide transportation for twenty million tons of high grade bituminous coal.

Association Activities

Northern West Virginia Coal Operators' Association

Election of new officers featured the annual meeting of the association held at Fairmont. A. Lisle White of Clarksburg was elected the new president. John A. Clark of Fairmont was elected treasurer and George S. Brackett, also of Fairmont, executive vice-president and secretary. Vice-presidents were elected from each of the subdistricts which constitute the association but such vice presidents were chosen by the members from the respective districts, the elections resulting as follows: V. E. Gocke as vice president of the Clarksburg district; E. Drennen of Elkins, as vice president of the Elkins district; A. Brooks Fleming, Jr., as vice president of the Fairmont district; J. V. Gibson, of Kingwood, as vice president of the Kingwood district; S. D. Brady of Morgantown as vice president of the Morgantown district; George S. Brackett as vice president of the Grafton district. The association as a whole elected the following directors at large: C. D. Robinson and W. C. Dobbie of Fairmont; J. A. Jenkins of Clarksburg; J. W. Devison of Grant Town; H. M. Crawford of Philippi.

A. Brooks Fleming, who was succeeded by A. Lisle White, was not a candidate for re-election. George S. Brackett was chosen by the directors a few weeks ago as executive vice president and secretary when George T. Bell resigned as such. His selection was considered such a wise one that the association affirmed the choice without debate or dissenting vote.

Southern Ohio Coal Exchange

A very important meeting of the exchange was held in Columbus, Feb. 15, when a number of matters of interest to the coal trade were discussed. Prominent among these were the recent decision of the I. C. C. relative to railroad rates on freight such as coal in which the railroads were given authority to charge higher rates in certain instances. The decision of the Ohio Utilities Commission, which saves the coal shippers 16c. on coal shipped from the southern Ohio field to northern Ohio points was also discussed. The Calder Bill pending in Congress came up for discussion and the members were unanimously opposed to the bill as it now stands.

One of the things brought up was the action taken at the Ohio State University for the practical testing of coal. Elaborate scientific machinery is being set up for a thorough testing of coal and its byproducts. This apparatus will be in operation about March 1.

Other questions considered were that of establishing washhouses for miners; railroad freight rates, polution of streams and matters now pending before the Ohio Legislature.

Industrial News

Cincinnati, O.—N. C. Hoyles, C. E., has been appointed manager of the Cincinnati branch of the Pittsburgh Testing Laboratory.

Terre Haute, Ind.—E. H. Goodman, F. J. Wolf and A. D. Torr have formed a partnership and incorporated as the Mine and Mill Supply Co., with headquarters and offices in Terre Haute. They will deal in all kinds of mine and mill supplies.

Pittsburgh, Pa.—The Star Car and Foundry Co. has opened a local office in charge of S. G. Little, formerly engineer and Pittsburgh manager of the Mine Car Department of the Hyatt Roller Bearing Co.

New Orleans, La.—The Equitable Equipment Company has just completed its organization for the purpose of handling locomotives, cars, railroad equipment, rails and rail accessories, etc. The new company is located at 411 Whitney-Central Building.

Coming Meetings

Canadian Retail Coal Association will hold its annual convention April 6 and 7 at the King Edward Hotel, Toronto, Ont., Canada. Secretary, B. A. Caspell, Brantford, Ont., Canada.

The International Railway Fuel Association will hold its thirteenth annual meeting at the Hotel Sherman, Chicago, Ill., May 24, 25 and 26. Secretary, J. G. Crawford, Chicago, Ill.

The National Coal Association will hold its next annual convention at White Sulphur Springs, W. Va., May 18 to 20. For information regarding hotel reservations, etc., address W. B. Reed, secretary, Commercial National Bank Bldg., Washington, D. C.

New England Coal Dealers' Association will hold its annual meeting March 23 and 24 at Boston, Mass. President, W. A. Clark, Boston, Mass.

The American Society of Mechanical Engineers will hold its spring meeting May 23, 24, 25 and 26 at the Congress Hotel, Chicago, Ill. Secretary, Calvin W. Rice, 29 West 39th St., New York City.

National Chamber of Commerce will hold its ninth annual meeting at Atlantic City, N. J., April 27, 28 and 29.

The annual meeting of the **Pittsburgh Vein Operators' Association,** which was scheduled to have been held in Cleveland on Feb. 14, has been postponed to March 14.

National Retail Coal Merchants Association Sixth Conference of Secretaries and Executives to be held at the Baltimore Hotel, Kansas City, Mo., May 15 and 16. For reservations address H. S. Mitchell, New York Life Bldg., Kansas City, Mo.